1985

Patterns of Job Satisfaction and Stress on High School Industrial Arts Teachers in the State of Iowa

Chin-Zue Chen
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PATTERNS OF JOB SATISFACTION AND STRESS ON HIGH SCHOOL INDUSTRIAL ARTS TEACHERS IN THE STATE OF IOWA

Iowa State University PH.D. 1985

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Patterns of Job Satisfaction and Stress on High School Industrial Arts Teachers in the State of Iowa

by

Chin-Zue Chen

A Dissertation Submitted to the
Graduate Faculty in Partial Fulfillment of the
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CHAPTER I INTRODUCTION

Stress is an integral part of life. In daily life, the common term "under stress" is perceived as a bad or negative feeling. Indeed, stress itself does not mean good or bad in nature, but an individual may respond to it with positive or negative, desirable or undesirable, and beneficial or harmful reactions. In other words, whether stress results in good or bad effects depends on how the individual responds to it (Davis, 1977; Rokusek, 1983). Selye (1974) uses the terms eustress and distress to distinguish between those stresses that are beneficial and those that are harmful.

Stress in teaching may motivate, challenge, arouse, or activate an educator to meet student needs and lead to increased teacher growth and satisfaction, i.e., beneficial stress (Gmelch, 1983). On the other hand, if it results in headaches, sleeplessness, a lack of confidence, feelings of inadequacy, absenteeism, and emotional and physical illness, the effects of stress are harmful (Broiles, 1982; Hackett, 1982; Iwanicki, 1983; Landsman, 1978). Manera and Wright (1981) suggest that when teachers first start teaching, they are energized by eustress. It creates the desire to succeed in teaching students as much as possible, even to work after school hours to help slow learners. What causes the

teachers of 10, 15, or 20 years to decide to seek other types of employment or retire early? Barineau (1981) states that teachers have left the teaching profession because of unrelenting stress. Other teachers stay on the job only because of economic necessity. He also suggests that highly stressed teachers may not be able to respond to student needs effectively.

The contemporary problems in education, which include declining school enrollment, professional immobility, staff reduction, stagnation, "inservice retirement", and increased accountability, are creating stress on teachers (Crase, 1980). Numerous articles in recent literature state that teacher stress has reached epidemic proportions in many areas of the country (Amodio, 1981; Barineau, 1981; Meagher, 1983; Walton, 1982). A Nationwide Opinion Poll, conducted by the National Education Association in 1980, indicated that more than 40 percent of the teaching force would not choose a career in education if they were to begin again ("Teacher Opinion Poll", 1980). This fact revealed that job-related stress had diminished the satisfaction many teachers derived from their work, caused many good teachers to choose alternative careers, and lessened the energy and creativity that many outstanding teachers brought to their classrooms.

Recently, Meagher (1983) conducted a study in which 200 public school teachers from the midwest (including Iowa, Kansas, Missouri, and Nebraska) were interviewed by telephone. He found that teachers were under considerable stress, disillusioned with their career choice, and actively seeking a career change. This finding raises the question of whether the situation of the industrial arts teachers in the state of Iowa is different from that of typical classroom teachers. What kinds of stress are perceived by the Iowa industrial arts teachers, and what stressors influence their job satisfaction.

Statement of the Problem

This study sought to investigate patterns of job satisfaction and stress on high school industrial arts teachers in the state of Iowa.

Statement of the Purpose

The purpose of this study was to ascertain the job stress and satisfaction status among Iowa high school industrial arts teachers. The study attempted to answer the following questions:

1. What degree of satisfaction do industrial arts teachers feel with a career in education?
2. To what extent do industrial arts teachers feel they are experiencing stress?
3. What do industrial arts teachers feel are the primary sources of stress?
4. What do industrial arts teachers feel are the primary satisfiers and dissatisfiers in their job?
5. Are there different answers to the above questions for different demographical subgroups (i.e., school level, school location, school size, teaching experience, professional educational background, course cluster, marital status, and age)?

It was hoped that the findings of this study:

1. Could aid various educators in recognizing the level of industrial arts teachers' job satisfaction, and reduce the levels and the sources of stress.
2. Could aid recruits to be aware of existing factors in job satisfaction and stress.
3. Could be used to improve teaching environments and implement stress reduction/prevention strategies.

4. Could be used in industrial teacher education institutions for evaluating/improving their programs.
5. Could be used in teacher training institutions to influence prospective students to consider careers in industrial arts education.
6. Could be utilized by administrators and supervisors to influence school trustees and other school community leaders in developing community conditions which would attract and hold teachers.

Assumptions of the Study

This study was conducted with the following assumptions:

1. Teachers perceive the existence of stress and satisfaction from their job.
2. Stress and job satisfaction are identifiable and measurable.
3. Stress is reducible and job satisfaction is improvable.
4. The survey questionnaire is a valid measure for collecting information on industrial arts teachers' stress and satisfaction.

5. The procedures for selecting the research subjects are valid and adequate for making inferences for the general population of industrial arts teachers in similar schools.
6. The size of the sample is sufficient to be sensitive to differences which may exist among independent variables.
7. Respondents interpreted the questionnaire items correctly.
8. Respondents responded to the questionnaire honestly.
9. Any positive feeling that an individual perceived will somewhat, directly or indirectly, affect the person's behavior toward a desired or positive direction.

Limitations of the Study

It was not intended that the conclusions of this study be generalized to all industrial arts teachers across the United States. The findings and conclusions are restricted to the state of Iowa. Other limitations included:

1. The measurement of stress will be limited to the qualitative data.

2. Samples are limited to the industrial arts teachers in Iowa high schools.

Definition of Terms

Industrial Arts:

Industrial arts is that portion of general education devoted to understanding and solving the technical and human problems brought about by the industrialization and technologial advancement of our society. It is especially concerned with graphic communications (design-drafting, graphic arts, research and development), manufacturing construction (metals, plastics, woods, construction, research and development), and energy and power (electricity, electronics, power, research and development) (Iowa State Department of Public Instruction, 1969, 1975).

High School:

High school includes public and private junior high school, middle school, junior and senior high school, middle and senior high school, high school, senior high school, and community high school in Iowa.

School Location:

School location is identified by the population of the city or village where the school is seated. A school can be

classified into rural school, suburban school, or urban school in this study.

Rural School:

A high school setting in a community with the population less than ten thousand.

Suburban School:

A high school setting in a community with the population between ten thousand and eighty thousand.

Urban School:

A high school settinng in a community with the population of more than eighty thousand.

School Size:

School size is identified by the total number of student enrollment in a particular school year. In this study, size of school is classified into large size, middle size, and small size.

Large Size School: A high school with student enrollment of one thousand and more.

Middle Size School:

A high school with student enrollment between four hundred and nine hundred and ninety-nine.

Small Size School:

A high school with student enrollment less than four hundred.

Stress:

Stress is a perceived imbalance between environmental demand and individual response. It does not mean good or bad in nature.

Eustress:

Stress which leads to desired outcomes. Another term generally used is positive stress.

Distress:

Stress which leads to undesired outcomes. Another term used is negative stress.

Stressor:

Source of stress.

Teacher Stress:

Stress which a teacher encounters because of his/her career as a teacher. Although it does not mean positive or negative in nature most of the articles reported in the literature review implied teacher stress in a negative manner. To prevent confusion, therefore, teacher stress is defined as a response to a negative affect by a teacher usually accompanied by potentially pathogenic physiological and biochemical changes resulting from aspects of the teacher's job and mediated by the perception that the demands made upon the teacher constitute a threat to his self-esteem or well-being and by coping mechanisms activated to reduce the perceived threat (Kyriacou & Sutcliffe, 1978).

Job Satisfaction:

A blending of an individual's personal values, job environment, and other psychological and physiological circumstances that result in one's feeling of fulfillment with a particular occupation.

Hypotheses of the Study

Research Hypothesis 1:

There is no significant difference in the level of stress which industrial arts teachers perceived when school level, school location, school size, teaching experience, educational level, course cluster, marital status, and age are compared.

Research Hypothesis 2:

There is no significant difference in the level of satisfaction which industrial arts teachers perceived when school level, school location, school size, age, marital status, teaching experience, educational level, and cluster of teaching are compared.

Research Hypothesis 3:

There is no significant difference in the level of satisfaction when the willingness for career change is compared.

Research Hypothesis 4:

There is no relationship between the level of stress and job satisfaction.

Organization of the Study

The report of this study is organized in the following manner: Chapter I consists of the introduction, the statement of the problem, the statement of purposes, assumptions of the study, limitation of the study, definitions of terms, and hypotheses of the study. Chapter II includes a review of literature and research findings most relevant to the present study. Chapter III outlines the methodology of the study, presenting a detailed explanation of the procedures used for selecting the sample, collecting the data, and analyzing the data. Chapter IV reports the analysis of the data resulting from the questionnaire and statistical treatment of these data in both descriptive and tabular forms. Chapter V contains a summarization of the findings and conclusions of this study with a discussion of the results of the study and recommendations for further research.

CHAPTER II REVIEW OF THE LITERATURE

It is assumed that an individual perceives some sort of tension in his/her daily life and at any point in time occupies a point on a continuum ranging from extreme happiness through neutrality to extreme unhappiness. It may be said that in daily work every one is under stress to a certain extent and feels some degree of satisfaction and/or dissatisfaction.

In this chapter, the theoretical foundations of stress and satisfaction that might help explain what influences an individual's job stress and job satisfaction are examined, and the literature related to teacher stress and job satisfaction is then reviewed. This review also explores the source of stress, satisfaction and dissatisfaction.

In summary, the literature review is arranged in the following sequence:

1. conceptual framework of stress,
2. conceptual framework of satisfaction,
3. studies related to teacher stress,
4. studies related to teacher job satisfaction
5. teacher stress and job satisfaction
6. relationship between some demographic variables and teacher stress and job satisfaction.

Conceptual Framework of Stress

The word "stress" was derived from Latin. In the seventeenth century it was used to mean "hardship, straits, adversity, or affliction." During the eighteenth and nineteenth centuries it evolved to mean "force, pressure, strain, or strong effort." Until the twentieth century the term was also used to intend pressure or strain on a person's "organs of mental powers" (Hinkle, 1973).

From different aspects researchers categorize the concept of stress differently, yet they are related to each other. The categories reviewed include three psychological approaches and six social-psychological themes.

Three Approaches of the Concept of Stress

In recent comprehensive reviews of the literature three main usages of the concept of stress, from psychological point of view, have been identified (Laux & Vossel, 1982; Cox, 1978; Mason, 1975; McGrath, 1970):

Response-Based Approach The most popular response-based definition of stress has been developed by Selye. Selye (1976) defines stress as the state manifested by a specific syndrome consisting of all the nonspecifically induced changes within a biological system.

Stimulus-Based Approach There are two propositions in this approach: One proposes that stress is an objective condition and threat is the consequence of the appraisal process (Spielberger, 1972; Heinrich & Spielberger, 1982). In other words, objectively nonstressful situations may be appraised as threatening if a person, for some reason, perceives them as harmful; on the other hand, objectively stressful situations may be regarded as nonthreatening by certain persons. The other proposes to include the subjective appraisal of the situation in the definition of stress (Chan, 1977). It is argued that an event becomes stressful only when it is perceived as such.

Interaction of Individual and Situation Approach This approach to stress has been proposed to overcome the inadequacies of models that define stress solely in terms of stimulus or response parameters (Cox, 1978; Mason, 1975 b; McGrath, 1983). It typically emphasizes that "stress occurs when there is a substantial imbalance between environmental demand and the response capability of the focal organism" (McGrath, 1970, p. 17). In this view, stress exists in an imbalance between perceived demand and perceived response capability. Sarason (1979) also states that "stress follows a call for action when one's capabilities are perceived as falling short of the needed personal resources" (p. 4). This approach is of a demand-capability imbalance.

It must be noted that the term "interaction" has two major and yet contradictory usages. The first type of interaction, which refers to unidirectional causality, is the interaction of persons and situations that influence behavior. The second type of interaction, which focuses on reciprocal causation, says that not only does the situation influence behavior, but the behavior of an individual is also an active agent in affecting the environment (Endler & Magnusson, 1976; Lazarus & Launier, 1978). Pervin (1968) suggested using the term "interaction for unidirectional causality only and the term "transaction" for reciprocal causation.

This approach signifies two-way cause-and-effect relationships via a complex set of feedback processes (Lazarus & Cohen, 1978).

Six Themes of Stress

McGrath (1970, 1983) generalized stress research literature into six themes from the viewpoint of the social-psychological factors in stress. They are:

The Cognitive Appraisal Theme Subjectively experienced stress depends on the person's perception and interpretation of the "objective" or external stress situation.

The Experience Theme An individual's familiarity with the situation, past exposure to the stressor conditions, and/or prior practice or training in responses to deal with the situation, can influence his/her level of subjectively experienced stress.

The Reinforcement Theme An individual's past successes and failures in a given type of situation can operate to reduce or enhance the level of subjectively experienced stress, for that individual, in that type of situation. This is an extension of the experience theme.

The Inverted-U Theme At low levels of subjectively experienced stress (arousal), task performance is poor; an increase in stress to a certain level will enhance task performance; further increases in stress beyond that optimal level lead to performance decrements.

The Task Differences Theme The relationships among subjectively experienced stress, task performance, and ensuing consequences depend on the type of task and how that task relates to the stressor conditions being investigated.

The Interpersonal Effects Theme The presence and activities of other persons may influence the subjective experience of stress and may also influence responses to stress and the consequences of these responses. These influences may operate in several partially conflicting ways. The presence of significant others may increase arousal level. Significant others may be sources of potential self-esteem and other interpersonal rewards; or sources of potential irritation and antagonism. The focal person's task performance may be directly and/or indirectly helped or hindered by significant others. How strongly each of these functions operates in a given situation depends on the task structure and the interpersonal composition of that situation.

These themes are, in fact, interrelated with one another, and are related to the three approaches of the concept of stress reviewed earlier.

McGrath's Descriptive Model of Stress Cycle

McGrath (1982) developed a descriptive model of a stress cycle (Figure 1), which includes feedback processes of interaction of individual and situation approach.

A stress situation begins with some set of circumstances in the sociophysical environment. It becomes a stress situation for the focal person if he/she perceives (Appraisal Process) it as leading to some undesirable state

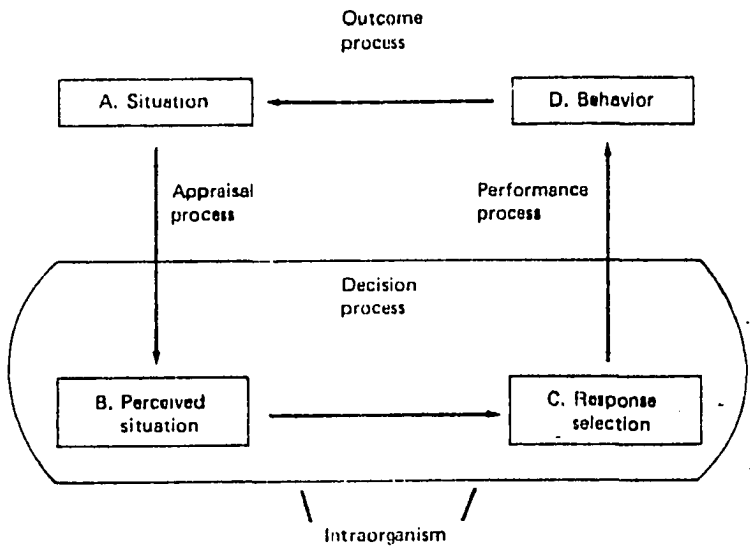

FIGURE 1. McGrath's Model of Stress Cycle

of affairs. This holds whether or not that perception is veridical. The focal person then "chooses" (Decision-Making Process) some response alternatives and executes (Performance Process) that response with the intention of changing his/her relation to the situation. That response does in fact have some consequences (Outcome Process), both for the focal person and for the situation, though not

necessarily the intended ones. The new situation may become a new stress situation for the focal person.

There are six sources of stressful situations (stressors) in the stress cycle:

1. Task-based stress (such as task difficulty, work load, and job ambiguity).
2. Role-based stress (such as conflict, role ambiguity, etc.).
3. Stress intrinsic to the behavioral setting (such as the effects of overcrowding or undermanning, etc.).
4. Stress arising from the physical environment itself (such as extreme cold, hostile forces, etc.).
5. Stress arising from the social environment (such as interpersonal relationships, needs for privacy, disagreement, etc.).
6. Stress within the person's system which the person brings with him/her to the situation (such as perceptual styles and anxiety).

These six stressors (sources of stress) are not totally separate (McGrath, 1983).

The Stress and Performance Curve

Gmelch (1982) developed the stress and performance curve based on the inverted-U theme of stress. Figure 2 presents an overview of the stress and performance curve.

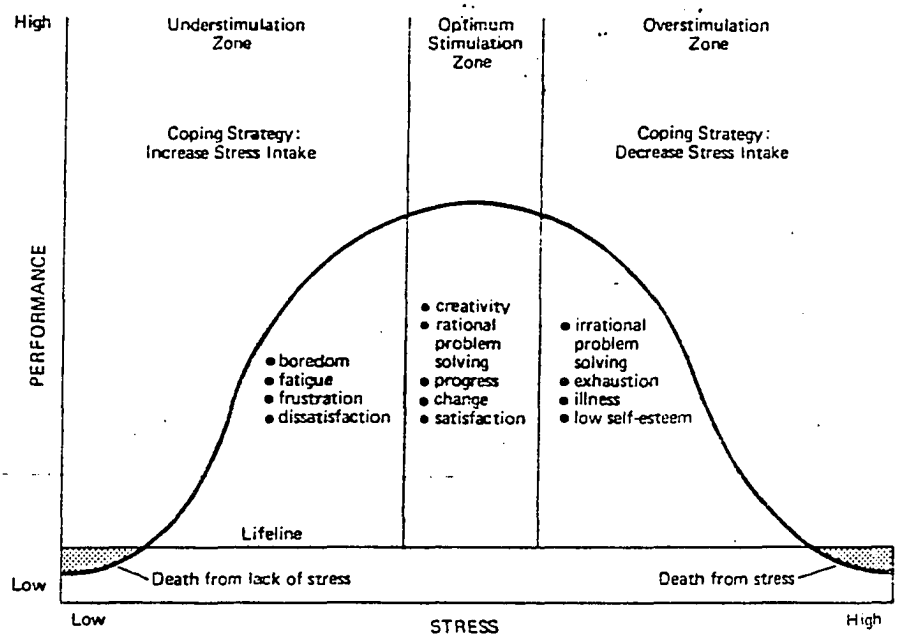

FIGURE 2. The Stress and Performance Curve

The curve is divided into three zones of stimulation (under, optimum, and over), with a horizontal "life line" slightly up from the base of the graph, connoting low to no performance due to too little, or too much stress.

At the left extreme, the person may be physically alive but is professionally dead. In the understimulation zone, the person is underchallenged and suffers from boredom, fatigue, frustration, and dissatisfaction. The person finds him/herself rustout. In the optimum stimulation zone, one is creative, a rational problem solver, progressive, changeful and effective, and feels satisfied with work. In the overstimulation zone, the person has been going too hard for too long and is ambitious, aggressive, and impatient; and becomes an irrational problem solver, exhausted from working long hours, dissatisfied from working without results, and despondent from loss of self-esteem. The person experiences burnout. On the right side extreme the person goes beyond the burnout stage to a point where he/she either physically or professionally has ceased to exist.

One important concept of this model is that the curve is dynamic. Everyone rolls up and down between zones, depending on the type of activity and the period of time. It means, for example, being burned out at the end of the work day, but does not necessarily mean the person has to enter his/her front door at home in the same condition. The optimum stimulation zone can and should vary from one part of one's life to the next.

Regardless of the variety of propositions of stress, stress does not imply good or bad in nature. From Selye's point of view, stress is a nonspecific response of the body to any type of demand made on it. The response pattern is always biochemically the same, regardless of the nature of the stressor. Consequently, whether an activity or situation is pleasant or unpleasant, the same biochemical reaction takes place in the body. Selye uses the terms "eustress" and "distress" to distinquish between beneficial and harmful types of stress (Selye, 1974). Selye (1976) has said of stress, "It is the spice of life, for without it people would die" (p. 85). Levi (1972) suggests that too much or too little stress can result in performance problems in organizations; stress becomes an enemy only when too much or too little is produced. Gmelch (1983) also states that "In itself and in the proper amounts, stress is not bad. It is much like your body's temperature; you must have it to stay alive" (p.10).

A Model of Teacher Stress

Kyriacou and Sutcliffe (1978) developed a model of teacher stress built on a large theoretical framework referring to stress. The model is represented in Figure 3.

In this model, when the teacher perceives the objective potential stressors (Box 1) to constitute a threat to

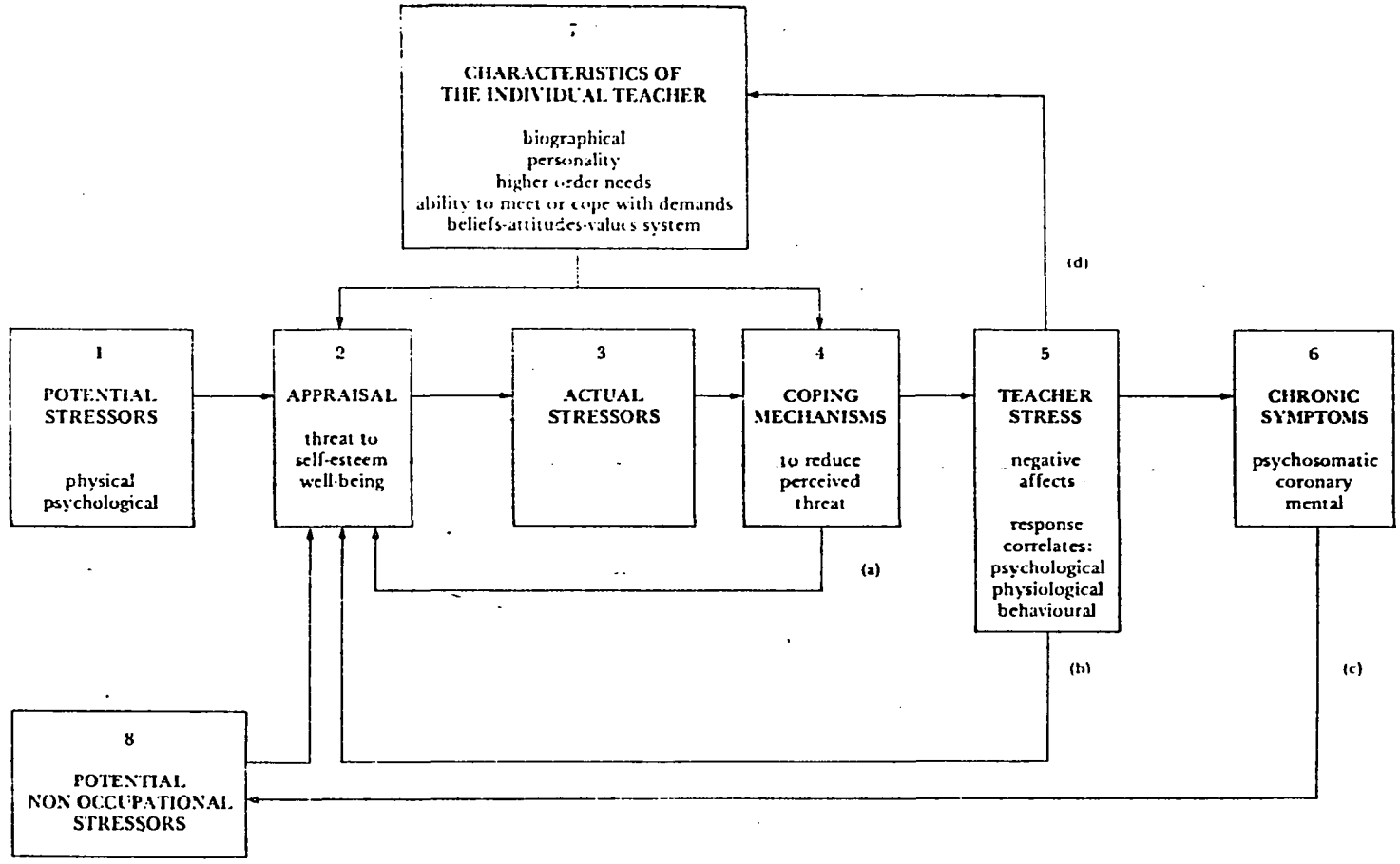

FIGURE 3. Kyriacou-Sutcliffe's Model of Teacher Stress

his/her self-esteem or well-being (Box 2), the potential stressors become actual stressors (Box 3). The coping mechanisms of the teacher (Box 4) are then introduced to deal with the actual stressors. Those actual stressors and threat that the coping mechanisms were unable to deal with are conceptualized as teacher stress (Box 5).

This experience of failure may affect the teacher's future appraisal of the ability to meet or cope with new demands (feedback loop d); this is related to self-esteem. Also, that teacher stress itself may affect appraisals directly (feedback loop b). Teacher stress is accompanied by the negative psychological, physiological, and behavioral responses. Those negative responses may lead to psychosomatic and chronic symptoms (Box 6). The chronic symptom, in turn, becomes (feedback loop c) the potential nonoccupational stressor itself (Box 8); this is related to well-being. The "style" of appraisal (Box 2) and coping mechanisms (Box 4) are determined by the teacher's individual characteristics (Box 7). In addition, the coping mechanisms may affect the teacher's appraisal of potential stressors (feedback loop 1).

Conceptual Framework of Satisfaction

Job satisfaction, which accompanies motivation to work, has been a major concern in industry and business, and has been a popular subject for American vocational psychologists. Locke (1976) estimated that by 1972, 3,350 articles had been written about job satisfaction, including a number of theoretical propositions.

Campbell et al. (1970) classified the satisfaction theories as either "process" or "content".

Content Approaches

Content theories search for the specific things within individuals that initiate, direct, sustain, and stop behavior. The literature reviewed on the basis of these approaches included the conventional model, Maslow's Need Hierarchy Theory, Alderfer's ERG theory, and Herzberg's two factor (motivator-hygiene) theory.

Conventional Model of Job Satisfaction This model defined job satisfaction as the total feeling an individual possessed about his/her job. Total feeling was thought to be affected by both job-related and environmentally-related factors; job satisfaction and job dissatisfaction were viewed as polar opposites on a single continuum (Griffith, 1979; Sergiovanni, 1967). If a variable influenced job

satisfaction, the variable's absence would cause dissatisfaction and vice versa (Graen, 1968). It was assumed that a dissatisfaction factor was a potential satisfaction factor and a satisfaction factor had to be maintained at a certain level or it became a dissatisfaction factor (Sergiovanni, 1967).

Hoppock (1935) found that job satisfaction was related to many different things, such as relations with others, the nature of the work, the equity of pay, and the number of hours worked. He concluded that job satisfaction could be determined by either evaluating the job as a whole or by assessing different aspects of the job. He believed that the lack of satisfaction resulted in dissatisfaction, a view consistent with the conventional model.

Maslow's Need Hierarchy Theory This theory proposed that all individuals have basic sets of needs that they strive to fulfill. In 1943, Maslow proposed five basic sets of needs in this hierarchical order: physiological needs, safety needs, social needs, esteem needs, and self-actualization needs. These needs were arranged in order of prepotency. When needs are satisfied at one level, the next higher order of needs becomes predominant in influencing behavior. Unless a lower need is at least partially fulfilled, it is difficult for the next higher need to be influential on the person's behavior (Maslow 1968, 1970).

It is important to note that the lower four needs are deficiency needs while self-actualization is a growth need (Wlodkowski, 1984). This highest order need is the desire to fulfill one's fullest potential. The process of this theory is of fulfillment-progression.

ERG Theory Alderfer (1969, 1972) considered the individual to have three basic sets of needs: Existence needs, Relatedness needs, and Growth needs. These three needs vary on a continuum of concreteness; existence is the most concrete, relatedness is moderately concrete, and growth is least concrete. The theory assumes that when the less concrete needs are not met, more concrete need fulfillment is sought.

Both fulfillment-progression and frustration-regression are important dynamic elements in the process of this theory.

Two Factor Theory This theory has been an extremely popular theory of work motivation over the past twenty years. Herzberg (1966) maintained that job satisfaction and job dissatisfaction are not at opposite ends of the same continuum, but are separate and distinct factors. Each factor is presumed to be dependent on different sets of work conditions and worker needs. Factors which produce job

satisfaction and motivation are called motivators or satisfiers and are said to be intrinsic to the job. They are concerned with the content of work and include: achievement, recognition, the work itself, responsibility, and growth or advancement. Their absence does not lead to decreased performance (Herzberg, Mausner, and Snyderman, 1959). Factors, external to the job, that bring job dissatisfaction are the hygiene factors or dissatisfiers. There are extrinsic factors in work and they involve the relationship of the worker to the context of the job. These factors include: company policy and administration, supervision, salary, interpersonal relationships, working conditions, status, and security. Satisfaction with these factors however, does not lead to motivation (Grigaliunas and Herzberg, 1971; Herzberg 1966).

Research findings using this theory have produced contradictory results and have stimulated extensive research (Davis, 1982; McGowan, 1981; May, 1978).

Process Approaches

Process theories explain how behavior is initiated, directed, sustained, and stopped. VIE Theory, Discrepancy Theory, Adams' Equity Theory, and Lawler's Model are reviewed:

Discrepancy Theory The discrepancy approach states that satisfaction is determined by the differences between the actual outcome a person receives compared with another perceived outcome level. The definition of outcome level differs widely. Some suggest that it is what the person feels should be received, while others advocate this level is what a person expects to receive. All argue, however, that what is received should be compared with another outcome level. When a difference occurs, e.g., received outcome is below the other outcome level, then dissatisfaction results. The perceived relationship between what is wanted from a job, and what it is actually offering, highlights a key concept (Katzell, 1964; Locke, 1969).

The most widely used discrepancy approach, formulated by Porter (1961), asks people how much of a given outcome there should be for their job and how much of a given outcome actually exists. The discrepancy between these two factors provides an assessment of satisfaction. Thus, satisfaction in this context is influenced by how much should be received, and not only by how much a person wants to receive from the job.

There are three different discrepancy approaches derived from the literature on job satisfaction. One approach examines what people want, another looks at what

people feel they should receive, and the third examines what people expect to receive. Total job satisfaction is influenced by the sum of the discrepancies that exist for each facet of a job. No weighting of these factors is indicated since the discrepancy score of equating dissatisfaction due to over-reward or under-reward is not addressed in this theory.

Equity Theory The equity theorists (Adams, 1963, 1965; Pritchard, 1969) propose that satisfaction is determined by the perceived ratio of what a person receives from a job relative to the effort put into it. This concept notes that either under-reward or over-reward can lead to dissatisfaction, producing very different feelings. Over-reward may lead to guilt, while under-reward may result in perceptions of unfair treatment.

In the equity postulate, the individual sets up the ratio of inputs to outcomes and compares the value of that ratio to the value of the ratio for "significant others" or "comparison-others" (the social comparison). If the value of the ratio equals the values of the others' ratios, the situation is perceived as equitable and no tension exists; if the values are unequal then tension exists, and the individual will be motivated to reduce that tension. This critical comparison is absent in the discrepancy theories.

The equity approach clearly states how people judge inputs and outcomes in developing perceptions of fairness in comparing the input-outcome balance. How a worker decides what the outcomes of a job should be is vague in the discrepancy theory (Lawler, 1973).

VIE Theory Vroom (1964) formalized many of the instrumentality hypotheses and constructed a theory labeled VIE theory... Valence, Instrumentality, and Expectancy.

Valence is a component that describes the attracting or repelling capabilities of psychological objects in the environment. The instrumentality component answers the question "Should I expend the energy or not?" or "What's in it for me?" A person evaluates a potential outcome (e.g., a promotion), on the basis of his/her perception of the relationship between that outcome and other outcomes (e.g., increased money and responsibility), for which he/she has varying preferences or valences. The relationship between the first outcome and the second outcome is known as an instrumentality relationship. The expectancy component is a probability estimate of a relationship between an action and an outcome.

The theory assumes that individuals ask themselves whether or not (1) the action has a high probability of leading to an outcome (expectancy); (2) that outcome will

yield other outcomes (instrumentality); and (3) those other outcomes are valued (valence).

Lawler's Model of Satisfaction Lawler (1973) revised the Porter-Lawler's VIE model (Porter and Lawler, 1968), which was the most comprehensive expansion version of VIE models. It utilized the strengths of the discrepancy and equity theories, and developed a model of satisfaction.

Satisfaction focuses on what workers feel should be received from a job rather than what they want to receive. The perception of what "should be" received may be influenced by organizational practices. An assumption of the model is that the same psychological processes operate to determine satisfaction with job factors ranging from pay to supervision and satisfaction with work itself. Figure 4 represents Lawler's modified model.

The chart depicts satisfaction as the difference between 'a', what a person feels should be received, and 'b', what is actually received from a job. If these two perceptions agree, satisfaction results. If, however, the perceived outcome level falls below what the individual feels it should be, dissatisfaction results. A unique feature of this model is that if the perceived outcome exceeds what the worker believes it should be, guilt, inequity, and discomfort may result. Therefore,

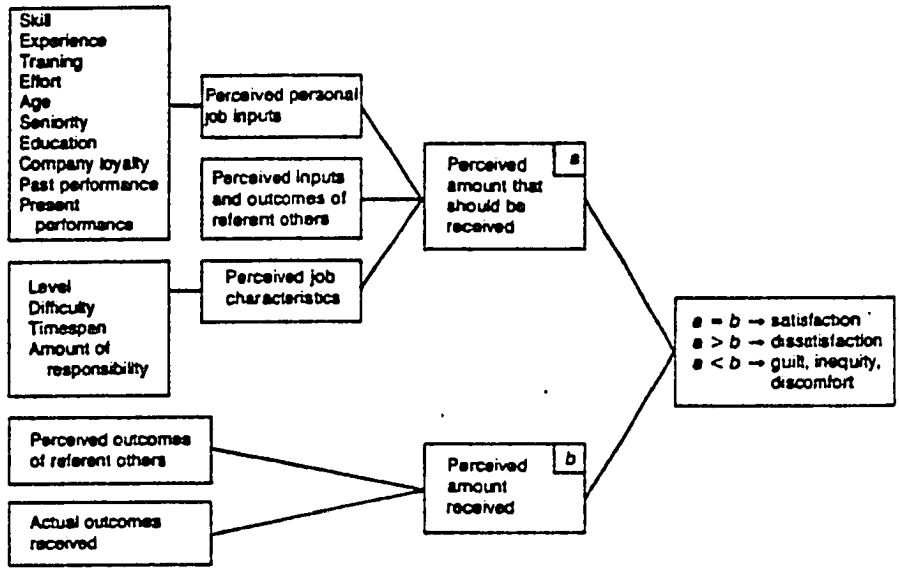

FIGURE 4. Lawler's Model of the Determinants of Satisfaction

satisfaction with specific aspects of the job can be determined by the perceived differences between how much of a factor is actually received and how much should be received.

A key influence on the perception of what rewards are received is the present outcome level. This perception is also influenced by the perception of what "referent" others receive.

The perception of what the reward should be is influenced by many factors, of which perceived job inputs is perhaps the most important. Job inputs include all the skills, abilities, and training brought to the job by the individual and the behavior exhibited on the job. The greater the perceived inputs, the higher the perceptions of what the outcomes should be.

A component integrated in the Lawler model from the equity theory involves the perception of what the outcomes should be as influenced by the perceived significant others inputs and outcomes.

Overall job satisfaction is ascertained by combining all judgments of satisfaction with all the various facets (components) of a job. In the model, it is the sum or mean of all the discrepancies (a's minus b's). The overall measure is the result of differences between all expected outcomes and those that are actually received from the job. The model presents the conditions that lead to people experiencing feelings of satisfaction or dissatisfaction with work.

It should be noted that, according to Lawler (1973), "no well-developed theories of satisfaction have appeared and little theoretically based research has been done on satisfaction" (p. 61). Steers and Porter (1979) also

pointed out that a totally unifying theory of motivation (satisfaction) does not appear to exist at this time. The following theories reviewed might help explain what influences an individual's job satisfaction.

Studies Related to Teacher Stress

Teacher stress is not a particularly new area of concern in the educational literature. However, researchers have still left the picture of teacher stress a confused one. One of the major problems is that there is no integrated framework or conceptual map of the subject. Many of the studies reviewed concentrated on the individual differences of perceptions and appraisal of the situations, others on the characteristics of the environment, and still others focused on the individual's stress response. This lack of unity in conceptualization of stress is expected to continue until a clear definition and model of teacher stress is developed and widely accepted by researchers (McGrath, 1970). Thus, for the purpose of this review, teacher stress is considered in terms of a broad area of research involving all aspects of job stress among teachers rather than one theoretical concept.

The Incidence of Teacher Stress

The incidence of teacher stress has been a popular research topic. The National Education Association in a 1938 survey found that 37.5% of the respondents felt their job was stressful; in 1951 it was found that 43% of the teachers in a survey felt their jobs made them nervous; in 1968 it was reported that 16% of teachers in a survey felt extreme nervousness, while 61.7% reflected moderate strain. In a 1980 survey, it was found that 22% of the respondents felt a nervous strain due to their job; and in 1981 it was reported that 37% of its membership was unhappy and 45% of the teachers would not choose to be a teacher again.

Parkay (1980) investigated the relationship between the teaching style and personality traits of individual teachers and their stress. He reported that teachers could be separated into three groups. Group A teachers were under the highest stress and tended to be dogmatic, with low self-esteem. Group B teachers were flexible in their teaching style and exhibited characteristics of high self-actualization and reported low stress. Group C teachers were highly dependent, with low self-esteem and reported stress from teaching.

Sources of Teacher Stress

Identifying the sources of job stress is extremely difficult to ascertain among individuals. Stress affects each educator differently. What is stressful for one person may not be stressful for another. Yet, the accumulation of stressful work related events among teachers would draw a general picture of the sources of teacher stress.

Many researchers have worked on identifying the sources of teacher stress. Cichon and Koff (1978) surveyed 4,934 members of the Chicago Teachers Union and found that the five most stressful events were (1) priority concerns, such as violence and discipline; (2) management tension, such as involuntary transfer; (3) notification of unsatisfactory performance; (4) threat of personal injury; and (5) overcrowded classrooms. Cichon and Koff (1978) also surveyed three Chicago suburban school districts. The top five stressors were somewhat different (1) involuntary transfer; (2) notification of unsatisfactory performance; (3) preparing for a strike; (4) threat of personal injury; and (5) managing disruptive students. Coates and Thoreson (1976) conducted a survey of the concerns of beginning teachers. The main concerns listed by these teachers were (1) maintaining discipline; (2) being liked by staff and students; (3) subject knowledge; (4) running out of materials; and (5) relation to staff.

Fesbach and Campbell (1978) researched the relationship between student teachers and experienced teachers and their ratings of stress events in teaching. Experienced teachers' ratings were significantly different from student teacher ratings. Experienced teachers' top rated items were (1) interactions with children, (2) time, and (3) parents. While student teachers' top rated items were (1) concern over performance, (2) behavior problems, and (3) relations with supervisors.

Lawrenson, Gory, and McKinnon (1980) conducted a study of 33 special education teachers, in which attrition, job satisfaction, and burnout were investigated. The factors of stress reported were (1) isolation from colleagues, (2) lack of feedback, and (3) lack of participation in policy making.

Some findings which relate to teacher stress are summarized in Table 1.

Studies Related to Teacher Job Satisfaction

Job satisfaction has been a major concern in industry and business for almost 50 years, but has only been considered in the field of education within the past few decades.

TABLE 1. Summary of Studies on Teacher Stress

Stressor \ Author	Talbot (1974)	Coates & Thoresen (1976)	Kyriacou & Sutcliffe (1977)	Cichon & Koff (1978)	Fesbach & Campbell (1978)	Kyriacou & Sutcliffe (1978b)	NYSUT Research & Ed. Services (1979)	Manera & Wright (1980)	Morris & Morris (1980)	Needle et al. (1980)	Goodall & Brown (1980)	Grossnickle (1980)	Dunham (1980)	Alschuler (1980)	Swick & Hanley (1980)	Holifield (1981)
Student misbehavior		X		X	X	X	X					X		X		X
Discipline	X	X	X	X	X				X			X		X		
Teacher-student/ parent relation		X			X								X	X	X	X
collegial relation	X	X	X				X		X	X			X	X	X	
Working with other teachers																
Administrator, principal	X						X		X					X		
Participation of decision-making													X	X		
Administrative support							X									
Financial		X	X						X	X		X		X		
Classroom size				X										X		
Recognition for good teaching				X					X		X				X	
Work overload													X	X		
Equipment & material					X									X		
Working conditions	X					X			X	X				X		
Job Security												X			X	
Professional growth				X				X	X	X					X	
Resources for teaching		X		X						X				X		
Time demands		X	X		X	X		X						X		X
Public pressure												X				X

The Incidence of Job Satisfaction

Kornbluh and Cooke (1980) conducted research in which the quality of Michigan teachers' work life was compared with workers who participated in Quinn's and Shepard's 1977 Quality of Employment Survey. In the study, teachers were found to be less satisfied with their jobs than workers from the national sample. Also, teachers were more dissatisfied when compared with a national sub-population of college graduates. Furthermore, job satisfaction among teachers was found to vary from school to school, with the quality of work life higher in schools with good communication and shared decision-making between teachers and administrators.

A study of elementary, middle level, and senior high school teachers in Colorado by Cole (1977), found that teachers were generally satisfied with their jobs. Teachers in rural communities were more satisfied than those in urban or suburban areas; however, no significant difference in teacher job satisfaction was found among the various grade levels investigated.

Sources of Job Satisfaction and Dissatisfaction

Sumrall (1976) conducted a study of the relationship between the leader's behavior and job satisfaction of Texas teachers. He found a significant positive relationship between teacher satisfaction and consideration of the

leader's behavior. The following was also noted: there were moderate job satisfaction attitudes toward teacher relationships and supervision, and neutral attitudes toward pay and low satisfaction with promotion.

Martin (1974) investigated the relationships between job satisfaction, attitudes toward students, and residence of public school teachers and administrators in New York state. No significant differences in job satisfaction were found between teachers or administrators residing in the school district or in their attitudes toward students.

Bishop (1969) conducted a study on factors affecting job satisfaction among Iowa public school teachers. The most satisfying factors noted in this study were the work itself, achievement, and relationships with students. The least satisfying elements were school policies and rules, recognition, quality of supervision, and salary. In addition, a converse relationship was found between age and job satisfaction.

Studies Related to Teacher Stress and Job Satisfaction

Stress has been found to be related to job satisfaction. It may be said that job stress and job satisfaction are different facets of psychological and physiological reactions toward the specific job. Treacy

(1982) stated that the capacity to meet the challenges associated with work can lead to personal satisfaction. However, when the challenges were beyond one's ability, resources, and authority, the result may become one of stress. Manera and Wright (1980) found that prolonged job stress and consequent job dissatisfaction were related to negative work attitudes and behavior. A very close association between the sources of job stress and the factors of job dissatisfaction was also revealed (Gross, 1970; Warr & Wall, 1975; Kanner et al., 1978). Furthermore, considerable evidence has been compiled to show the curative effects of work satisfaction on mental distress (Selye, 1976).

In the study of perceived stress among teachers, Pratt (1978) concluded that the largest group of stressful events was related to the teachers' observations of their own failure to teach satisfactorily. Cichon and Koff (1980) and Newell (1978) also indicated that stressful working conditions led to feelings of doubt and inadequacy and tended to create general dissatisfaction with teaching.

Amodio (1981) conducted an analysis of job-related stress and dissatisfaction in the teaching profession. He reported that 80% of 181 teachers surveyed were suffering in varying degrees from job dissatisfaction and the majority held rather negative attitudes toward teaching as a career.

In comparing regular and special education teachers' stress and job satisfaction, Satton and Huberty (1984) found that both groups had similar stress levels. However, the special education teachers showed a higher level of satisfaction than the regular education teachers.

St. Clair (1981) studied the effects of educator stress in terms of selected variables. Although the study failed to determine if there was any difference between job satisfaction and job stress, the findings supported the notion that teachers who experienced greater stress were also likely to experience lower job satisfaction, to be absent more frequently, and to be more likely to leave teaching. From this, he concluded that, whether or not a teacher is satisfied will influence his ability to handle job stress, and there may be a difference in the ways a satisfied teacher handles stress, compared to a dissatisfied teacher's reactions to stress.

Relationship between Some Demographic Variables and Teacher Stress and Job Satisfaction

Some researchers suggested that certain demographic variables may be significantly correlated with teacher stress and satisfaction. In order to construct the research

hypotheses, the significance of the teacher, as well as school factors, including age, marital status, professional preparation, teaching experience, grade level taught, school location, and school size were reviewed.

Age

Caplan et al. (1975) suggested that age was related to length of time in service. It is speculated that the longer the service, the greater the exposure to job stress and/or the more adequate the coping skills.

Owens (1983), however, found a significant difference in the perception of stress due to the age of teachers. There was evidence that younger teachers were under more stress than older teachers (Martray and Adams, 1981; Harmer, 1979; Kyriacou and Sutcliffe, 1978). New York State United Teachers Research and Educational Services (1979) disclosed that the 31 to 40 year old teachers expressed the greatest stress, while those over 50 years reported experiencing the least stress. Catterton (1979) surveyed 1,063 teachers and found that new teachers under 30 rated the lowest in stress, teachers between 31 to 50 rated the highest, and teachers over 50 were ranked second lowest in stress. Lentz (1983) also found that vocational teachers in the older age group had lower stress in professional problems and time pressure. On the other hand, Cichon and Koff (1978) reported that

teachers, regardless of age, showed common perceptions concerning job stress.

Herzberg et al. (1957), in reviewing 23 studies, found a U-shaped relationship between age and job satisfaction, starting high when workers began their jobs, dropping during the next few years, and reviving during the late twenties and steadily growing throughout the remainder of their careers. Hulin and Smith (1978) found no clear U-shaped relationship to exist. There were studies which supported a converse relationship between age and job satisfaction (Bishop, 1969; DiCaprio, 1974; Tharpe, 1976; Anderson 1980); while Glenn, Taylor, and Weaver (1977) found a direct positive relationship between them.

Marital Status

Raison's (1981) study of job burnout and stress in regular and special education teachers, suggested that teachers not married have a greater frequency of emotional exhaustion and more intense feelings of depersonalization. Treacy (1982) cited McLean's, 1979, suggestion that a spouse may mitigate the impact of job dissatisfaction on health. He also cited Cobb and Kasl's study in 1977 on the social support received from a spouse and relatives, they found that such supports moderate depression, anxiety-tension, anger-irritation and joint swelling among individuals

experiencing job loss. Kyriacou and Sutcliff (1978a) found, in their study on teacher stress in England, that there was no significant difference between teachers' marital status and their perception of job stress.

Of the 12 studies reviewed by Herzberg et al. (1957), three studies found married workers to be more satisfied than unmarried; one showed that unmarried workers were more satisfied than married; and eight showed no difference between married and unmarried workers in job attitudes.

Lacy (1968) investigated factors that affect job satisfaction of public high school business teachers in Ohio. Among the findings, she reported no difference was shown in job attitudes between married and unmarried teachers. However, Becvar (1969) reported different findings of first-year teachers with respect to job attitudes. It was found that married first-year teachers were more satisfied than their unmarried peers.

Educational Level

Lentz (1983) found that teachers with less than a bachelor's degree had lower scores in professional problems, time pressures, and classroom structure than those with higher educational level attainment. Herzberg et al. (1957) reported that in 13 studies relating education to job attitudes, three studies showed an increase in morale with

an increase in education; another five showed the higher these workers' educational level, the lower their morale; and the remaining studies showed no differences in job attitudes among the workers' level of education. Klein and Maher (1976) found that college educated managers were less satisfied with their pay when compared with a noncollege educated group. While the study of England and Stein (1976) showed a higher educational level to be related positively to job satisfaction. Also, Cortis (1976) reported that school counselors' amount of education had an increased relationship with job satisfaction. Varley's (1973) results of his study of 436 teachers in 14 metropolitan high schools found that teachers who graduated from teachers' colleges were relatively satisfied with their work.

Teaching Experience

Caplan et al. (1975) speculated that the longer the work experience, the greater exposure to stresses related to the job. Furthermore, longer exposure may mean that some workers remain because they can effectively cope with job demands. There are researchers who found that the stressors for beginning teachers (including student teachers) were different from those of experienced teachers (Fuller, 1969; Campbell & Williamson, 1974; Coates & Thoresen, 1976). Cichon and Koff (1980), in their study on 4,875 certified

teachers in Chicago, pointed out that no significant differences existed between new teachers and experienced teachers. Jarratt (1983) also found that there was no sign of difference between teachers' perceptions of stress who have taught different lengths of time. Garfield (1984) reported that teachers' age, years of experience, and years in the Philadelphia school system had little or no relationship to how they rated stressors.

Grade Level Taught

St. Clair's (1981) study on educator stress showed no significant difference between grade level and extent of stress. Jarratt (1983) also found no significant difference between K-6 and 7-12 teachers' perceptions of organizational caused stress. Taton (1983), on the other hand, found that junior high teachers had significantly higher stress than elementary or senior high school teachers. Cortis (1976) revealed that satisfaction in a counselor's job was inversely related to school grade level. Garfield (1984), in her study of perceived teacher stressors and their relationship to stress symptomology in public school teachers, reported that the level of school had an effect on how teachers rated teacher stressors. The literature reviewed showed an inconsistent relationship between teacher stress and the grade level taught.

School Location

Treacy (1982) cited Syme's, 1964, conclusion of study on the relationship between social changes and heart disease that urbanization created a greater risk. Treacy (1982) also cited Kellam's, 1974, summary of a review of research suggesting that there may be an urban/suburban distinction with respect to stressful events. New York State United Teachers Research and Educational Services (1979) revealed that teachers in urban schools reported more stress than teachers in rural or suburban schools in the New York survey.

School Size

Jarratt (1983) found no significant difference between the teachers' perception of job stress in large and small schools located in South Dakota. Owens (1983) also reported no significant difference in the perception of stress due to size of school. While Taton (1983) found that teachers in a larger school had a significantly higher level of stress than did teachers in a small school in California. These results also showed an inconsistent relationship.

Summary

Stress and satisfaction are a reality of a job. Understanding conceptual frameworks of stress and satisfaction would be helpful in explaining what and how an individual's job stress and satisfaction are caused and/or influenced.

From a psychological point of view, the concept of stress could be categorized into three approaches: the response-based approach, the stimulus-based approach, and the interaction of individual and situation approach. From the viewpoint of social-psychology, the concept of stress could be classified into six themes: the cognitive appraisal theme, the experience theme, the reinforcement theme, the inverted-U theme, the task differences theme, and the interpersonal effect theme. These themes are interrelated with one another.

Three stress models were also studied:

1. McGrath's model of stress cycle, which explained the stress loop that a situation becomes stressful, the focal person responds to it, and the new situation may become a new stress situation for the focal person.
2. Gmelch's stress and performance bell shape curve indicates the relationship between stress and

performance. When stress is too little, the person will rustout; when there is too much stress, the person will burnout.

3. Kyriacou-Sutcliffe's model of teacher stress conceptualizes teacher stress as a response syndrome mediated by an appraisal of threats to the teacher's self-esteem or well-being and by coping mechanisms activated to reduce the perceived threat.

In the satisfaction area, the theories could be classified into two approaches. The content approach, which searches for the specific things within an individual that lead from initiation to termination of behavior. This review included the traditional satisfaction model, Maslow's need hierarchy theory, ERG theory, and the two factor theory.

The process approach explains how behavior is initiated, directed, sustained, and stopped, and includes the VIE theory, Discrepancy theory, Equity theory, and Lawler's model of the determinants of satisfaction.

After theoretical propositions of stress and satisfaction were reviewed, literature related to teacher stress and job satisfaction were then studied. The stressors, satisfiers, and dissatisfiers in teaching were especially reviewed. In addition, some demographic

variables including age, marital status, educational level, teaching experience, grade level taught, school location, and school size were also examined; some of their influences on teacher stress and job satisfaction seemed to be inconsistent in the reported studies.

The review of the literature provided the researcher with insights in the selected research topic. It also allowed the researcher to prepare the survey instrument and plan the analysis of data gathered for this study.

CHAPTER III METHODOLOGY

This chapter is a description of the methods and procedures used in the study. The procedures have been divided into the following sections:

1. Description of the Population and the Samples.
2. Development of the Instrument.
3. Collection of the Data.
4. Data Analysis.

Description of the Population and the Samples

The study was designed to investigate the patterns of job stress and satisfaction on Iowa high school industrial arts teachers. The target population included all public and private high school industrial arts teachers in the state of Iowa. A stratified sampling technique was employed to select appropriate proportions of samples in terms of school level, school location, and school size.

The school levels included junior high schools, senior high schools, and junior and senior combination high schools. All high schools were classified by the title of the schools. Those school names which did not fit into the levels described were assigned to an appropriate category according to their grade level range.

The school location was classified into three categories: (1) rural school, located in a community with a population under ten thousand; (2) suburban school, with a city population range of ten thousand to less than eighty thousand; and (3) urban school, a city population of eighty thousand and more.

The school size was classified according to the student enrollment. Three levels were used: large size school, with a student enrollment of one thousand or more; middle size school, with a student enrollment from four hundred to less than one thousand; and small size school, with a student enrollment of less than four hundred; The population and sample distribution is shown in Appendix F.

Development of the Instrument

The instrument used to collect the data for this study was a self-administered questionnaire booklet (see Appendix A). The booklet consisted of three sections and a cover letter printed on the inner side of the cover.

The first section of the questionnaire was composed of 64 statements of situations which industrial arts teachers may encounter. Each statement was followed by two sets of respondent columns-- AGREEMENT and FEELING. The respondent was first requested to indicate agreement with his/her own

situation with the statement, by circling: strongly agree (SA), agree (A), neutral (N), disagree (D), or strongly disagree (SD); then to indicate the feeling about his/her own situation in one of the following categories: no special feeling (0), slightly enjoyable (1), enjoyable/encouraged (2), highly enjoyable/energized (3), or slightly uncomfortable (-1), moderately uncomfortable/frustrate (-2), extremely uncomfortable/can not tolerate (-3).

The second section requested each respondent to indicate the level of satisfaction about each of the following areas in general: students, colleagues, principal and supervisor, school administration, salary and benefits, working conditions, teacher status, their own professional and technical expertise, and community.

The third section of the questionnaire contained several demographic items which included:

1. age,
2. marital status,
3. teaching experience,
4. educational level,
5. course cluster of teaching.

Information about school level, school location, and school size was provided by the Iowa Department of Public Instruction. For the purposes of simplifying the

questionnaire, these three information categories were coded and constructed as a part of an identification number. The demographic data involved personal privacy. The researcher was concerned that the respondents' reluctance to answer the personal questions honestly might bias the results. To avoid this, the demographic section, unlike in most of other questionnaires, was placed at the end of the questionnaire, just prior to the final question.

The last section included a single question that asked the respondent which career he/she would choose if he/she could plan again. This item reflected the overall satisfaction of the teachers with their current job.

The questionnaire was specially designed in an attractive booklet form for easy handling, and provided a business reply service to elicit a higher return rate.

The development of the questionnaire was based on the summary of sources of teacher stress (see Table 1) which was discussed in Chapter II. These sources of teacher stress were expanded as an inventory and were classified into nine areas:

1. stressors related to students;
2. stressors related to colleagues;
3. stressors related to principal/supervisor;
4. stressors related to administration;
5. stressors related to professional/expertise;

6. stressors related to salary and benefits;
7. stressors related to working conditions;
8. stressors related to teacher status;
9. stressors related to community.

The particular stressors that industrial arts teachers may encounter were then considered within each area, and added into the inventory.

In the students' area, the stressor added included concern for safety while operating machines or using tools, students' preparation of materials for class, and cooperation among students in class activities. In the administration area, maintenance of shop equipment was added. In the professional area, the stressors "high-tech" impact, competence as an industrial arts teacher, and usage of creative abilities were also included. The principal's view of industrial arts, the principal's actions toward industrial arts shop problems, and the supervisor's technical competence and aptitude were added to the principal/supervisor area. In the working conditions area, the stressor added was the noise level in the shop. In the community area, pressure toward industrial arts teacher was also considered a stressor.

The questionnaire was then designed using the included inventory with sixty-four items classified under the above nine areas (see Appendix B). The prototype of the

questionnaire was examined for its ease in reading, appropriateness of items, and plausibility of items. Content validity was ascertained by eight faculty members at Iowa State University. The questionnaire was first revised based on the recommendations of the eight reviewers. Four items were eliminated, two items were modified, three other statements were reworded, and three new items were added.

In addition, the revised questionnaire was designed in several different major forms, and the final form was selected as a result of a mini-survey based on the responses of twelve graduate students in the College of Education at Iowa State University.

Two major issues were elicited from the mini-survey, the format and the symbols used in the respondent columns. Format one had the order of agreement choice columns, item statement, and also a feeling choice columns. Format two had the order beginning from item statement, and then agreement choice columns and feeling choice columns.

Not long after the mini-survey was conducted, the researcher found from the viewpoint of explaining the purposes and directions to the participants, the second option was superior to the first, and was not apt to lead to misunderstanding. Because the questionnaire was primarily designed to elicit the feelings of the respondents to real

situations, he/she was asked to first choose the level of agreement (in the first column) by comparing the item statement to his/her real situation, then to indicate the feeling about his/her own situation. It seemed more logical to arrange the feeling response columns following the agreement responses. Furthermore, unlike format one, this format was much easier to follow. A respondent need not jump back and forth to complete an item. The results of the mini-survey corroborated the researcher's anticipated expectation. Thus, the second format was adopted for use in the study.

In the case of the respondent symbols, most of the participants preferred using the alphabet abbreviations in agreement columns, that is, SA, A, N, D, SD, for strongly agree, agree, neutral, disagree, and strongly disagree, rather than using A, B, C, D, E or 1, 2, 3, 4, 5. Concerning the use of symbols for the feeling columns, no one preferred using the alphabet abbreviations to indicate the degree of feeling responses. Although there were several options, that is, a scale 1 through 7, 7 through 1, and alphabetical order A to G, most of the participants of the mini-survey chose the scale with -3, -2, -1, 0, 1, 2, 3. The number 0 represented neutral feeling, positive numbers represented positive feelings, while negative numbers represented negative feelings.

The revised items and format were then re-organized into a prototype booklet form. The prototype, which contained a cover letter and sixty-four items, was used in the pilot study.

Ten high school industrial arts teachers were selected as the pilot sample from the target population. A quarter coin was attached to the pilot test cover letter (Appendix D) inviting the participants to buy a cup of coffee. It attempted to attract the respondent's attention to respond to the questionnaire. Seven questionnaires were returned, but two were received after the final version was determined.

In the pilot test, the following questions were included to obtain the reactions about the questionnaire itself:

1. Is the questionnaire too long?
2. Is any item inappropriate (incomplete, ambiguous, difficult to read, etc.)?
3. Are there aspects which you think would contribute stress and/or job satisfaction to industrial arts teachers that were not included in this questionnaire?

Three respondents put their comments on the attached comment sheet. Only one teacher responded particularly to the length of the questionnaire. He felt the length of the

questionnaire was acceptable. The remaining comments were personal feelings about their jobs and some positive or negative job attributes. They are summarized as follows:

(1) Positive job attributes--seeing student growth and success.

(2) Negative job attributes--low income level, personal growth is secondary to student growth, working with noncaring students, low social status.

Those attributes actually had been included in the questionnaire.

As a result, the sixty-four items were retained in the final questionnaire. The categories used in the stress inventory were used to investigate how satisfied the industrial arts teachers were in these areas. This particular part comprised the second section of the questionnaire. The demographic section and final question completed the questionnaire. The final question asked the respondent's willingness for a career change if he/she could replan a career. The appreciative sentences and mailing instructions were added at the end of the booklet. The completed questionnaire is attached in Appendix A.

Collection of the Data

After 350 samples were chosen, the questionnaire booklets were mailed out to all of the selected samples. A code number was affixed to each booklet as an identification of school level, school location, and school size, and for further use as a follow-up to nonrespondents. Eighteen days after the initial mailing of the survey, a follow-up letter (see Appendix E), and an additional questionnaire booklet were sent out to the nonrespondents.

Data Analysis

Each returned questionnaire was carefully examined. If it had not been completed for at least the whole agreement set, the questionnaire was considered invalid and was eliminated from the analysis. There were 183 returns, but only 176 were sufficiently complete to be used for analysis.

One hundred and eighty-three usable questionnaires, which included seven from the pilot test, were coded and provided as a data file for running statistical analysis by applying Statistical Analysis System (SAS) and Statistical Package of the Social Science revised version (SPSSX) computer statistical packages.

Mean and standard deviation of each variable were calculated to draw a brief interpretation of the responses. A contingency table and chi-square test were employed to check the independency of agreement and feeling in section one. A factor analysis was conducted in the feeling portion of section one and classified the sixty-four items into nine areas which were parallel to the nine items in the second section. The purpose of this procedure was to verify the classification of the originally developed stressor inventory and make necessary adjustments.

Eleven items were shifted and three items were eliminated in this procedure. A summary of adjustments is shown in Table 2.

TABLE 2. Summary of the Item Adjustment by Factor Analysis

Category	Number of items		Factor Number
	Original	Adjusted	
Students	10	5	Factor 8
Colleagues	5	5	Factor 9
Principal/supervisor	8	9	Factor 2
Administration	9	6	Factor 6
Profession/expertise	10	9	Factor 3
Salary & benefits	7	8	Factor 4
Working conditions	11	9	Factor 1
Teacher status	3	5	Factor 7
Community	3	5	Factor 5
Total	64	61	

The final item classification (see Appendix C) was used as the factors of stress in hypotheses testing. The reliability of the instrument, as well as the subsections of the instrument, were examined. A Pearson product-moment correlation was examined on the relationship between teacher stress and satisfaction. Analysis of variance was conducted to test the career re-planning, as reported from the responses in the final question, and the satisfaction levels in the nine areas in section 2. Results and findings of the hypotheses tests are presented in Chapter IV.

CHAPTER IV RESULTS AND FINDINGS

The findings of this investigation are reported in reference to the stated purposes and objectives. In this chapter, the results are presented in three sections: (1) general characteristics of the sample, (2) general description of survey results, and (3) the results of statistical tests of the hypotheses.

General Characteristics of the Sample

In this study, three hundred and fifty Iowa high school industrial arts teachers were chosen as the sample. One hundred and eighty-three survey booklets (52.29%) were returned. In a further analysis of the respondents' return rates, regarding school level, school location, and school size, it was found that 36 (50.70% of 71) industrial arts teachers in junior high school, 103 (51.24% of 201) in senior high school, and 44 (56.41% of 78) in junior and senior combination high schools responded to the survey. Detailed information about the respondents is presented in Appendix F.

There were four respondents who taught only one or two classes related to industrial arts and did not consider themselves industrial arts teachers. Two of the respondents chose not to participate in the study because the

identification number was coded. Two respondents did not complete at least one set of the agreement or feeling responses and were considered inconclusive to be included in the analysis of results. The total usable responses, therefore, included one hundred and seventy-six (176) from the returns.

The demographic section of the instrument surveyed five personal variables: (1) age, (2) marital status, (3) teaching experience (including years of total teaching and years of teaching in industrial arts), (4) educational level, and (5) course cluster taught. The 176 valid responses were classified according to demographic variables. Table 3 summarizes these data.

General Description of Survey Results

The first part of the questionnaire consisted of sixty-four items concerning teachers' situations and their feelings. The respondents were asked to indicate the level of agreement to each item statement according to their own situation and reflect the feeling about their situation.

A contingency table and chi-square test were applied to examine the independency of agreement and feeling. The results showed that all items were highly correlated, at $P \leq 0.0001$ level, except one. The results for the

TABLE 3. General Characteristics of the Samples

Characteristics	Range	N	%
School Level			
Junior High		35	19.9
Junior/Senior		43	24.4
Senior High		98	55.7
	Total	176	100.0
School Location	(City Population)		
Rural	Under 10,000	119	67.6
Suburban	10,000 - 79,999	33	18.8
Urban	80,000 & over	24	13.6
	Total	176	100.0
School Size	(Student Enrollment)		
Small	under 400	83	47.2
Middle	400 - 999	68	38.6
Large	1,000 & over	25	14.2
	Total	176	100.0
Age			
	under 30	29	16.5
	30 - 39	68	38.6
	40 - 49	40	22.7
	50 & over	35	19.9
	no response	4	2.3
	Total	176	100.0
Marital Status			
Single		11	6.3
Married		158	89.8
Divorced		3	1.7
Widowed		2	1.1
	no response	2	1.1
	Total	176	100.0

TABLE 3 (continued)

Characteristics	Range	N	%
Teaching Industrial Arts (Years)			
	1 - 3	10	5.7
	4 - 9	44	25.0
	10 & over	116	65.9
	no response	6	3.4
	Total	176	100.0
Educational Level			
B.S./B.A.		98	55.7
M.S./M.Ed.		74	42.0
Ed. S.		1	0.6
	no response	3	1.7
	Total	176	100.0
Course Cluster	Teaching Load %		
Construction	0	67	38.1
	1 - 50	76	43.2
	51 - 100	22	12.5
	no response	11	6.2
	Total	176	100.0
Course Cluster	Teaching Load %		
Manufacturing	0	58	32.9
	1 - 50	83	47.2
	51 - 100	25	14.2
	no response	10	5.7
	Total	176	100.0
Course Cluster	Teaching Load %		
Energy & Power	0	65	36.9
	1 - 50	83	47.2
	51 - 100	19	10.8
	no response	9	5.1
	Total	176	100.0

TABLE 3 (continued)

Characteristics	Range	N	%
Course Cluster	Teaching Load %		
Graphic Communication	0	63	35.8
	1 - 50	92	52.3
	51 - 100	12	6.8
	no response	9	5.1
	Total	176	100.0

particular item, "I do my own maintenance of the shop equipment", indicated that the response of agreement and feeling was independent. This means that, for example, the duty of repairing a broken machine, some industrial arts teachers felt enjoyment or motivated, some felt frustrated or uncomfortable, while others just felt neutral. There was insufficient evidence to draw a conclusion that teachers tended to enjoy or be frustrated about the need to perform required maintenance of equipment.

A factor analysis was conducted. The sixty-one items were classified into nine factors to reflect back to the original item classification and correspond with the nine items in the satisfaction section. Items 16, 32, and 52 were eliminated because of low loading values and/or the ambiguity of classification after factor rotation (see Appendix H). The original and the adjusted item classifications are listed in Appendices B and C.

The reliability of each factor and overall items were also tested. The overall reliability was 0.915 and the nine factors ranged from 0.637 to 0.818. Table 4 displays this information in detail.

TABLE 4. Reliability of Stress Factor and Overall Items

Factor	Reliability Coefficient
Working conditions	0.7656
Principal/supervisor	0.8183
Profession/expertise	0.7866
Salary & benefits	0.7390
Community	0.6550
Administration	0.6380
Teacher status	0.6368
Students	0.7105
Colleagues	0.6391
Overall	0.9146

The scale applied in measuring feeling/stress was:

3 energized/highly enjoyable

2 encouraged/enjoyable

1 slightly enjoyable

0 neutral feeling

-1 slightly uncomfortable

-2 frustrate/moderately uncomfortable

-3 cannot tolerate/extremely uncomfortable.

In measuring satisfaction, a seven-scale was also applied:

3 very satisfied

2 somewhat satisfied

1 slightly satisfied

0 neutral

-1 slightly dissatisfied

-2 somewhat dissatisfied

-3 very dissatisfied

The following is a brief description of each factor and the survey results:

Working Conditions

Table 5 presents the contents of the working conditions factor and the means of teachers' feelings toward each element of the factor.

As an overall average, working conditions were not perceived by industrial arts teachers as a distressor (mean=0.178). The availability of materials and supplies needed for teaching, the procedures for obtaining materials and services, condition of the equipment and facilities, and the availability of the equipment were sources of eustress. The noise level in the shop, shop budget, and covering classes for absent teachers tended to cause distress.

TABLE 5. Factor I: Working Conditions

Working Condition	Mean
Noise level in the shop	-0.678
Adequacy of the shop budget	-0.237
The need to cover other teachers classes when they are absent	-0.228
Sufficiency of books & supplies	0.030
Availability of equipment	0.294
Condition of facilities	0.476
Conditions of equipment	0.489
The procedures for obtaining materials and services	0.570
Availability of materials needed for teaching	0.571
Overall	0.178

Principal/Supervisor

This factor included nine elements. The statements and their means of teachers' feelings are presented in Table 6.

It was found that industrial arts teachers felt slightly comfortable toward their principals and supervisors. In particular, the principal's interests in industrial arts teachers and their problems, taking actions to solve shop problems, and the supervisor's good technical competence and aptitude were the contributors of eustress. Facing the principal to criticize administrative policy tended to be a distress.

TABLE 6. Factor II: Principal/Supervisor

Principal/Supervisor	Mean
Facing principal to criticize administrative policy	-0.320
Principal visiting class for evaluation	0.224
Opportunity to provide input into decision-making	0.224
Principal's attitude toward teachers' professional growth	0.260
Principal visiting classroom without being invited	0.300
Supervisor's technical competence and aptitude	0.435
Principal's attitude toward industrial arts	0.500
Principal taking actions to solve shop problems	0.653
Principal's interest in teachers and their problems	0.802
Overall	0.346

Professional/Technical Expertise

Nine items were used in this factor. Table 7 shows the items and their means of feelings.

Overall, industrial arts teachers enjoyed their professional and technical expertise, confident of being as competent as other teachers, recognition of teaching industrial arts as interesting and challenging work, being able to use creative abilities, being responsible for the future of students, and respect and confidence from students were contributors to teacher eustress; but the need to tell students the same things over and over again contributed to distress.

TABLE 7. Factor III: Professional/Technical Expertise

Expertise	Mean
The need to tell students the same things over and over	-0.774
Talking about child's problems with parents	-0.357
Students' cooperation in class activities	1.000
The competency as an I.A. teacher	1.030
Students' interest in class	1.494
Responsibility for the future of students	1.584
Respect and confidence from students	1.632
Use of creative abilities in teaching career	1.749
The challenging and interesting of teaching I.A.	1.843
Overall	1.197

Salary and Benefits

The factor of salary and benefits is shown in Table 8.

TABLE 8. Factor IV: Salary and Benefits

Salary and Benefits	Mean
Living standard	-0.994
Equality of duties & responsibilities to salary	-0.947
Time for further study	-0.369
Keeping up professionally	0.076
Generosity of school policy within the limits of financial resources	0.083
Fairness and justice of salary policies	0.129
Taking extension courses	0.373
Opportunities to participate in professional activities	0.877
Overall	-0.098

On the overall average, industrial arts teachers felt slightly uncomfortable about their salary and benefits. Enhancement of participating in conferences, seminars, and workshops, etc., taking courses that could move them upward on their salary schedule were the main sources of eustress. Time for further studies, equality of salary to duties and responsibilities, and satisfaction with standard of living were sources of distress.

Community

The community factor included five components. Table 9 shows the contents of this factor and the means of the components.

TABLE 9. Factor V: Community

Community	Mean
Participating in social activities in community	0.083
Respect from the community	0.263
Public pressure	0.292
Personal standards expected by community	0.324
Participation in teacher-parent conferences	0.708
Overall	0.322

In general, the communities provided a eustress to the industrial arts teachers. They felt little comfort in participating in teacher-parent conferences. Industrial

arts teachers did not consider that community pressure affected their teaching and this awareness caused eustress.

Administration

Table 10 presents the contents of the administration factor and the means for its elements.

TABLE 10. Factor VI: Administration

Administration	Mean
Recognition for good teaching	-0.396
Non-teaching responsibilities	-0.361
Class schedule	-0.359
Maintenance duty on shop equipment	0.035
Isolation and confinement to the shop	0.249
Clerical services for the teachers	0.374
Overall	-0.079

The administration did not produce much stress, but tended to cause a negative feeling. Teachers found little enjoyment in performing clerical services. Industrial arts teachers did not think they were isolated and confined to the shop. These items tended to be eustress. The duty of shop equipment maintenance tended not to be a clear stress factor for the industrial arts teachers. A lack of recognition for good teaching, non-teaching responsibilities, and class scheduling were the main sources of distress.

Teacher Status

The factor of teacher status is comprised of five elements presented in Table 11.

TABLE 11. Factor VII: Teacher Status

Teacher Status	Mean
Time to spend with individual students	-0.406
The need to do school work at home	-0.189
Students' preparation of material for class	-0.133
Social status in the community	-0.006
Security of the job	0.275
Overall	-0.136

Industrial arts teachers felt distress with their teacher status. In this factor, only job security and social status did not tend to produce negative feelings. Students not preparing materials required for class, the lack of time spent with individual students, and the need to do school work at home were all distressors.

Students

The contents of the student factor and the means of teachers' feelings are presented in Table 12.

Almost all the industrial arts teachers strongly disagreed that students physically abused teachers. Nor did they consider that students verbally abused or interrupted a

TABLE 12. Factor VIII: Students

Students	Mean
Shop safety	-0.257
Students' verbal abuse of teacher	-0.164
Students' interruption in class	-0.065
Students' physical abuse of teacher	0.174
Class size	0.303
Overall	0.021

lecture. But they still tended to have a negative feeling toward this factor. Industrial arts teachers did not think their classes were too large and tended to have positive feelings. They thought students did not ignore safety rules when operating machines or using tools, but, they still had a tendency to feel uncomfortable in this matter.

Colleagues

The contents of colleague relationship are presented in Table 13.

It was found that industrial arts teachers slightly enjoyed the relationship with their colleagues. Industrial arts teachers felt they had good relations with the teachers in other fields and somewhat enjoyed these relationships. They felt that their teaching staff had high professional ethics and was congenial to work with, and that their work

TABLE 13. Factor IX: Colleagues

Colleagues	Mean
Appreciation of my work by other teachers	0.741
The professional ethics of the teaching staff	0.818
Acceptance of new/younger teacher by experienced teachers	1.182
The congeniality to work with the teaching staff	1.290
Overall	1.099

was also appreciated by other teachers. These were the eustressors experienced by the industrial arts teachers.

The rank order of the stress factors is presented in Table 14.

TABLE 14. Ordered Mean Stress Ratings of Stress Factors

Stress Factor	Mean
Expertise	1.197
Colleagues	1.099
Principal/Supervisor	0.346
Community	0.322
Working Conditions	0.178
Students	0.021
Administration	-0.079
Salary & Benefits	-0.098
Teacher Status	-0.136
Overall	0.317

The teachers' own professional and technical expertise and colleague relationships were the strongest eustressors, while teacher status, salary and benefits, and school administration were sources of distress.

The second part of the questionnaire, regarding satisfaction, contained nine items which referred to the nine factors of stress in the first part. The rank order of satisfaction levels is shown in Table 15.

TABLE 15. Ordered Mean Satisfaction Ratings by Stress Factor

Satisfaction	Mean
Colleagues	1.779
Expertise	1.744
Community	1.233
Students	1.146
Working conditions	0.982
Principal/Supervisor	0.971
Teacher Status	0.549
Administration	0.395
Salary & Benefits	-0.626
Overall	0.908

The main sources of satisfaction for industrial arts teachers were faculty relationships and their own expertise. The salary and benefits were the unique source of dissatisfaction.

The last section of the questionnaire asked about the willingness to change careers. The result is presented in Table 16.

TABLE 16. Distribution of Responses to Career Planning Item

Response	Number	Percentage
Teaching I.A. again	76	45.78%
Teaching other than I.A.	8	4.82%
Other than teaching	82	49.40%
Total	166	100.00%

Hypothesis Testing

Four hypotheses were included in this study. Hypothesis 1 postulated differences between stress level and demographic variables. Hypothesis 2 postulated differences between satisfaction level and demographic variables. Hypothesis 3 postulated a the relationship between stress and satisfaction. Hypothesis 4 postulated differences in satisfaction levels regarding the willingness to change careers. The categories of each demographic variable used in the hypotheses tested are presented in Table 3.

Research Hypothesis 1

There is no significant difference in the level of stress which industrial arts teachers perceived when school level, school location, school size, teaching experience, educational level, course cluster, marital status, and age are compared.

There were eight specific hypotheses tested under this general research hypothesis. One-way analysis of variance (ANOVA) was employed for all the hypotheses tested.

Hypothesis 1.1:

There is no significant difference in the level of stress which industrial arts teachers perceived when school levels are compared.

No significant difference was found in applying the ANOVA test. The null hypothesis 1.1 was accepted. That is, although industrial arts teachers teach in different level schools, they did not perceive significantly different levels of stress.

Hypothesis 1.2:

There is no significant difference in the level of stress which industrial arts teachers perceived when school locations are compared.

The mean stress ratings on the nine factors by the three school locations and their F value are shown in Table 17.

TABLE 17. Mean Stress Ratings by School Location and F Probabilities

Factor	School Location			P
	Rural	Suburb	Urban	
Working conditions	0.124	0.072	0.093	0.9620
Principal/supervisor	0.313	0.347	0.164	0.7601
Expertise	1.182	1.261	1.058	0.5846
Salary & benefits	-0.098	-0.037	-0.303	0.4841
Community	0.308	0.400	0.218	0.6780
Administration	-0.088	0.005	-0.167	0.7538
Teacher status	-0.054 (n=108)	-0.224 (n= 33)	-0.538 (n= 23)	0.0476*
Students	-0.076	0.206	-0.400	0.1674
Colleagues	1.030	1.128	1.282	0.4553

*Significant at 0.05 level.

It was found that when considering school locations, the level of stress on the teacher status perceived by industrial arts teachers was significantly different. In addition, a pairwise T-test was provided and revealed a significant difference (at 0.05 level) between urban high school teachers and rural high school teachers. The industrial arts teachers in urban schools perceived significantly more stress on teacher status than those in

rural schools. The teachers in rural areas did not feel stress as to their status, while those teachers in urban areas perceived a slight distress as to their teacher status.

Hypothesis 1.3:

There is no significant difference in the level of stress which industrial arts teachers perceived when school sizes are compared.

There were no significantly different levels of teacher stress found when comparing school sizes. The null hypothesis was accepted. That is, no matter in what size of school one was teaching, industrial arts teachers did not perceive significantly different levels of stress in their jobs.

Hypothesis 1.4:

There is no significant difference in the level of stress which industrial arts teachers perceived when ages are compared.

There were significant differences found in working conditions (0.05 level) and also in the areas of salary and benefits, teacher status, and community (0.01 level). That is, age does contribute to a teachers' perception of stress in the above areas.

TABLE 18. Mean Stress Ratings by Age and F Probabilities

Factor	Age in years				P
	Under30	30-39	40-49	50&up	
Working conditions	-0.144 (n=27)	0.048 (n=60)	0.492 (n=35)	0.042 (n=29)	0.0410*
Principal/supervisor	0.363	0.221	0.509	0.029	0.2099
Expertise	1.297	1.266	1.177	0.901	0.1572
Salary & benefits	-0.264 (n=27)	-0.358 (n=58)	0.191 (n=37)	0.097 (n=27)	0.0045**
Community	0.093 (n=26)	0.127 (n=63)	0.595 (n=39)	0.474 (n=27)	0.0062**
Administration	-0.269	-0.174	0.153	-0.078	0.1926
Teacher status	-0.496 (n=27)	-0.352 (n=59)	0.241 (n=39)	-0.165 (n=29)	0.0044**
Students	-0.031	-0.150	0.183	-0.242	0.4297
Colleagues	1.008	0.943	1.308	1.160	0.2241

*Significant at 0.05 level.
**Significant at 0.01 level.

Teachers within 40 to 49 years of age tended to perceive more eustress. Teachers less than 30 years of age tended to perceive more distress in teacher status, and working conditions. Teachers in 30 to 39 age group perceived more distress in salary and benefits.

Pairwise T-tests were then employed to those significances and the significant differences (at 0.05 level) were found:

Working conditions factor--group 3 (age 40-49) perceived more eustress than all other groups; group 1 (age under 30) perceived more distress than group 2 (age 30-39);

Salary and benefits factor--group 4 (age 50 and up) perceived more eustress than group 1 and group 2;

Community factor--group 3 perceived more eustress than group 1 and group 2;

Teacher status factor--group 1 perceived more distress than group 3 and group 4, group 3 perceived less distress than group 2.

Hypothesis 1.5:

There is no significant difference in the level of stress which industrial arts teachers perceived when marital status is compared.

There was no significant difference found. Industrial arts teachers with different marital status did not perceive significantly different levels of job stress.

Hypothesis 1.6:

There is no significant difference in the level of stress which industrial arts teachers perceived when years of teaching industrial arts are compared.

The means of years of teaching and the F value for each of nine stress factors are displayed in Table 19.

There were significant differences found in colleagues, administrations, salary and benefits, teacher status, and community factors.

TABLE 19. Mean Stress Ratings and F Probabilities by Years of Teaching

Factor	Years of Teaching			P
	1-3	4-9	10&up	
Working conditions	0.052	-0.162	0.230	0.0758
Principal/supervisor	0.641	0.188	0.290	0.2346
Expertise	1.500	1.178	1.136	0.1281
Salary & benefits	-0.105 (n=19)	-0.384 (n=42)	0.003 (n= 98)	0.0369*
Community	0.245 (n=18)	0.062 (n=42)	0.429 (n=105)	0.0296*
Administration	0.009 (n=18)	-0.361 (n=42)	0.019 (n=105)	0.0452*
Teacher status	-0.042 (n=19)	-0.505 (n=40)	-0.053 (n=105)	0.0309*
Students	0.211	-0.175	-0.058	0.4810
Colleagues	1.094 (n=17)	0.756 (n=41)	1.209 (n=107)	0.0196*

*Significant at 0.05 level.

These factors were additionally examined by pairwise T-test. Significant differences were found at the 0.05 level:

Salary and benefits factor--group 3 (10 years and up) perceived less distress than group 2 (4-9 years);

Community factor--group 3 perceived more eustress than group 2;

Administration factor--group 2 perceived more distress than group 1 (1-3 years);

Teacher status factor--group 2 perceived more distress than group 1 and group 3;

Colleagues factor--group 3 perceived more eustress than group 2.

These data show that there were different levels of stress perceived by industrial arts teachers due to the number of years of teaching experience. Teachers with four to nine years experience in teaching industrial arts tended to perceive more distress in all listed areas. More experienced teachers perceived higher eustress in faculty relationship and their communities.

Hypothesis 1.7:

There is no significant difference in the level of stress which industrial arts teachers perceived when the teachers' educational level is compared.

Table 20 shows the means of educational level and F statistics for each stress factor.

There were significant differences found in stress regarding salary and benefits, and stress from community. Those industrial arts teachers with a master's degree felt slightly more comfortable regarding their salary and benefits, while those with a bachelor's degree felt slightly more distress. Those teachers with a higher educational background also perceived more eustress from their communities than those with a bachelor's degree.

TABLE 20. Mean Stress Ratings and F Probabilities by Educational Level

Factor	Educational Level		P
	Bachelor	Master	
Working conditions	0.049	0.200	0.3273
Principal/supervisor	0.302	0.233	0.6586
Expertise	1.197	1.108	0.4270
Salary & benefits	-0.307 (n=85)	0.093 (n=65)	0.0029**
Community	0.157 (n=88)	0.468 (n=68)	0.0118*
Administration	-0.078	-0.100	0.8792
Teacher status	-0.180	-0.209	0.8483
Students	-0.092	-0.137	0.8073
Colleagues	1.070	1.099	0.8413

*Significant at 0.05 level.
**Significant at 0.01 level.

Hypothesis 1.8:

There is no significant difference in the level of stress which industrial arts teachers perceived when the clusters of teaching are compared.

The industrial arts courses were classified into four clusters, including construction, manufacturing, energy and power, and graphic communications. Each area was individually tested.

Hypothesis 1.8.1:

There is no significant difference in the level of stress which industrial arts teachers perceived when the teaching load in the construction cluster are compared.

Table 21 presents the means of teaching load in the construction area and the F statistics for each of nine factors.

TABLE 21. Mean Stress Ratings and F Probabilities by Construction Cluster

Factor	Construction Cluster			P
	0%	1-50%	51-100%	
Working conditions	0.035	0.239	0.019	0.4047
Principal/supervisor	0.224	0.280	0.469	0.6289
Expertise	0.985 (n=58)	1.297 (n=73)	1.256 (n=20)	0.0335*
Salary & benefits	-0.209	-0.014	-0.224	0.3620
Community	0.242	0.351	0.378	0.6681
Administration	-0.069	-0.119	-0.140	0.9282
Teacher status	-0.413	-0.930	-0.026	0.9282
Students	-0.308	0.075	-0.167	0.1612
Colleagues	1.103	1.135	0.895	0.5771

*Significant at 0.05 level.

There was a significant difference found in the level of stress in the professional and technical expertise area.

Pairwise T-test revealed that group 2 (1-50%) perceived more eustress than other two groups.

It was found that the teachers with different teaching loads in the construction area perceived different amounts of stress in the professional and technical expertise factor.

Hypothesis 1.8.2:

There is no significant difference in the level of stress which industrial arts teachers perceived when the percentages of teaching the manufacturing cluster are compared.

There was no significant difference found. This finding indicated that with different teaching loads in the manufacturing area, teachers did not perceive significantly different levels of stress.

Hypothesis 1.8.3:

There is no significant difference in the level of stress which industrial arts teachers perceived when the percentages of teaching the energy and power cluster are compared.

The means and the F values of ANOVA test are shown in Table 22.

Significant differences in the stress level were found in the relationship with colleagues factor. In addition, pairwise T-tests were conducted and a significant difference was found between group 2 (1-50%) and groups 1 (0%) and 3 (51-100%). Group 2 perceived less eustress. The teachers with different teaching loads in the energy and power cluster perceived a different level of stress regarding the colleagues factor.

TABLE 22. Mean Stress Ratings and F Probabilities by Energy and Power Cluster

Factor	Energy & Power Cluster			P
	0%	1-50%	51-100%	
Working conditions	0.297	0.007	0.111	0.2162
Principal/supervisor	0.399	0.180	0.261	0.4231
Expertise	1.186	1.131	1.243	0.8091
Salary & benefits	0.065	-0.242	-0.250	0.0900
Community	0.464	0.200	0.274	0.1370
Administration	-0.045	-0.171	0.044	0.5268
Teacher status	-0.045	-0.296	-0.274	0.2898
Students	0.100	-0.261	-0.062	0.1854
Colleagues	1.220	0.922	1.389	0.0440*
	(n=59)	(n=77)	(n=19)	

*Significant at 0.05 level.

Hypothesis 1.8.4:

There is no significant difference in the level of stress which industrial arts teachers perceived when the percentages of teaching the graphic communication cluster are compared.

There was no significant difference found in the level of stress which industrial arts teachers perceived due to different teaching load in the cluster of graphic communication.

A summary of results from Hypothesis 1 testing is presented in Table 23, and verbalized below:

Based on the summary of Table 23, it is concluded that:

TABLE 23. Summary of Significant Effects in Testing Hypothesis 1

Variable	Stress Factor									Overall
	1	2	3	4	5	6	7	8	9	
School Level										
School Location							*			
School Size										
Age	*			**	**		**			*
Marital Status										
Teaching I. A.				*	*	*	*		*	*
Educational Level				**	*					
Course Cluster										
Construction			*							
Manufacturing										
Energy/Power									**	
Graphic Communication										

1= Working conditions
2= Principal/supervisor
3= Profession/expertise
4= Salary & Benefits
5= Community
6= Administration
7= Teacher status
8= Students
9= Colleagues

*Significant at 0.05 level.
**Significant at 0.01 level.

1. The age of teachers was a contributor to the working conditions stress factor.
2. The teaching load in the construction cluster contributed to the stress levels in the professional and technical expertise factor.
3. The contributors to stress on the salary and benefits factor included teachers' age, years in teaching industrial arts, and their educational background.

4. The teaching experience in industrial arts, and educational level were contributors to stress on the community factor.
5. The contributor to administrative stress was the number of years of teaching experience in the industrial arts field.
6. The contributors to the level of stress on teacher status were school location, teacher's age and years of teaching industrial arts.
7. Years of experience in teaching industrial arts and the teaching load in energy and power were contributors to the colleagues stress factor.
8. The teachers' age and their teaching experience in industrial arts were the contributors to overall teacher stress.

Research Hypothesis 2

There is no significant difference in the level of satisfaction which industrial arts teachers perceive when school level, school location, school size, age, marital status, teaching experience, educational level, and cluster of teaching are compared.

This general research hypothesis included eight specific hypotheses. An analysis of Variance (ANOVA) test was used to examine each specific hypotheses.

Hypothesis 2.1:

There is no significant difference in the level of satisfaction which industrial arts teachers perceived when school levels are compared.

TABLE 24. Mean Satisfaction Ratings by Factor Areas and School Levels, and F Probabilities

Factor Area	School Levels			P
	Junior	Jr./Sr.	Senior	
Students	1.200	1.070	1.219	0.8815
Colleagues	1.886	1.837	1.749	0.8265
Principal/supervisor	1.057	0.861	0.959	0.9042
Administration	0.257	0.256	0.433	0.8374
Salary & benefits	-0.543 (n=35)	-1.465 (n=43)	-0.323 (n=96)	0.0025**
Working conditions	0.618 (n=34)	0.582 (n=43)	1.253 (n=95)	0.0337*
Teacher status	0.514 (n=35)	-0.116 (n=43)	0.792 (n=96)	0.0244*
Expertise	1.572	1.465	1.907	0.0670
Community	1.314 (n=35)	0.605 (n=43)	1.485 (n=97)	0.0082**

*Significant at 0.05 level.
**Significant at 0.01 level.

Significant differences were found in community, salary and benefits, working conditions, and teacher status.

Pairwise T-test was applied for further comparisons. The significant differences were found:

Salary and benefits factor--group 2 (junior/senior) perceived more dissatisfaction than group 1 (junior) and group 3 (senior);

Working conditions factor--group 3 perceived more satisfaction than group 1 and group 2;

Teacher status factor--group 2 perceived less satisfaction than group 3;

Community factor--group 2 perceived less satisfaction than group 3 and group 1.

These findings revealed that school level did contribute to industrial arts teachers' level of satisfaction. Industrial arts teachers in junior and senior combination high schools tended to be less satisfied with their salary and benefits, communities, working conditions, and teacher status.

Hypothesis 2.2:

There is no significant difference in the level of satisfaction which industrial arts teachers perceived when school locations are compared.

There was no significant difference found. That is, the different school locations did not contribute any significant difference regarding job satisfaction for industrial arts teachers.

Hypothesis 2.3:

There is no significant difference in the level of satisfaction which industrial arts teachers perceived when school sizes are compared.

TABLE 25. Mean Satisfaction Ratings by Factor Areas and School Sizes, and F Probabilities

Factor Area	School Size			P
	Small	Middle	Large	
Students	1.302	1.045	1.125	0.6266
Colleagues	1.675	1.838	2.083	0.3667
Principal/supervisor	0.892	1.103	1.750	0.6837
Administration	0.349	0.427	0.167	0.8538
Salary & benefits	-0.939	-0.426	-0.292	0.1368
Working conditions	0.829	1.045	1.174	0.5854
Teacher status	0.415	0.677	0.375	0.6271
Expertise	1.639	1.824	1.792	0.5883
Community	0.832	1.545	1.750	0.0043**
	(n=83)	(n=68)	(n=24)	

**Significant at 0.01 level.

A significant difference was found regarding the community factor. Significant differences (0.05 level) were found between group 1 (small size) and group 2 (middle size), and group 1 and group 3 (large size) from pairwise T-test. Industrial arts teachers in small size schools perceived less satisfaction with their communities.

Hypothesis 2.4:

There is no significant difference in the level of satisfaction which industrial arts teachers perceived when ages are compared.

TABLE 26. Mean Satisfaction Ratings by Factor Area and Teacher Age, and F Probabilities

	Teacher Age				
Factor Area	Under30	30-39	40-49	50&up	P
Students	1.000	1.338	1.462	1.735	0.1890
Colleagues	1.793	1.706	1.821	1.972	0.8038
Principal/supervisor	1.138	0.838	1.051	0.886	0.8859
Administration	0.414	0.191	0.436	0.486	0.8675
Salary & benefits	-0.928 (n=28)	-1.103 (n=68)	-0.205 (n=39)	-0.057 (n=35)	0.0123*
Working conditions	0.857	0.897	0.421	0.677	0.2324
Teacher status	0.483 (n=29)	0.060 (n=67)	1.154 (n=39)	0.743 (n=35)	0.0200*
Expertise	1.069 (n=29)	1.809 (n=68)	2.026 (n=39)	1.829 (n=35)	0.0043**
Community	0.035 (n=29)	1.279 (n=68)	1.744 (n=39)	1.657 (n=35)	0.0001***

*Significant at 0.05 level.
**Significant at 0.01 level.
***Significant at 0.001 level.

In salary and benefits, teacher status, community, and professional/technical expertise areas, significant differences were found.

By applying pairwise T-tests, the following significant differences (0.05 level) were found:

Salary and benefits factor--group 1 (under 30) perceived more dissatisfaction than group 3 (40-49) and group 4 (50 and up), group 2 (30-39) also perceived more dissatisfaction than group 3 and group 4;

Teacher status factor--group 2 perceived less satisfaction than group 3 and group 4;

Expertise factor--group 1 perceived less satisfaction than any of the other three groups;

Community factor--group 1 perceived less satisfaction than any other group.

The test results suggested that age contributed to the industrial arts teachers' satisfaction level in salary and benefits, teacher status, community, and professional/ technical expertise areas.

Hypothesis 2.5:

There is no significant difference in the level of satisfaction which industrial arts teachers perceive when marital status is compared.

There was no significant difference found in relation to marital status. That is, no matter what the marital status of the industrial arts teachers, the level of job satisfaction was not statistically different.

Hypothesis 2.6:

There is no significant difference in the level of satisfaction which industrial arts teachers perceive when years of teaching industrial arts are compared.

TABLE 27. Mean Satisfaction Ratings by Factor Area and Years of Teaching, and F Probabilities

Factor Area	Years of Teaching I.A. 1-3	4-9	10&up	P
Students	1.500	1.364	1.062	0.4148
Colleagues	1.813	1.568	1.878	0.3966
Principal/supervisor	1.563	1.046	0.835	0.3433
Administration	0.813	0.318	0.305	0.6163
Salary & benefits	0.313 (n=16)	-1.209 (n=43)	-0.426 (n=115)	0.0125*
Working conditions	1.125	0.744	1.018	0.5985
Teacher status	1.375	0.296	0.474	0.1137
Expertise	1.000 (n=16)	1.477 (n=44)	1.931 (n=115)	0.0018**
Community	0.688 (n=16)	0.727 (n=44)	1.505 (n=115)	0.0064**

*Significant at 0.05 level.
**Significant at 0.01 level.

There were significant differences found in the salary and benefits area, professional/technical expertise area, and community area. The results show that the total years of teaching industrial arts contributed to the teacher's level of satisfaction in those three areas.

Pairwise T-test was employed for more specific examinations. The following are significant findings at the 0.05 level.

Salary and benefits factor--group 2 (4-9 years) perceived more dissatisfaction than group 1 (1-3 years) and group 3 (10 years and up);

Expertise factor and community factor--group 3 perceived more satisfaction than group 1 and group 2.

Hypothesis 2.7:

There is no significant difference in the level of satisfaction which industrial arts teachers perceive when teachers' educational levels are compared.

TABLE 28. Mean Satisfaction Ratings by Factor Area and F Probabilities for Educational Level

	Educational Level		
Factor Area	Bachelor	Master	P
Students	1.175	1.165	0.9659
Colleagues	1.753	1.865	0.5704
Principal/supervisor	0.794	1.162	0.2159
Administration	0.186	0.595	0.1739
Salary & benefits	-1.135 (n=96)	-0.094 (n=74)	0.0002**
Working conditions	0.802	1.222	0.1012
Teacher status	0.406	0.676	0.3369
Expertise	1.639	1.865	0.1987
Community	0.897 (n=97)	1.662 (n=74)	0.0016**

**Significant at 0.01 level.

There were significant differences found in the salary and benefits area and the community area. This suggested that the educational level does influence industrial arts teachers' satisfaction level regarding salary and benefits and community areas.

Hypothesis 2.8:

There is no significant difference in the level of satisfaction which industrial arts teachers perceive when the clusters of teaching are compared.

There are four course clusters included in this study. They are construction, manufacturing, energy and power, and graphic communication. Each cluster was individually tested.

Hypothesis 2.8.1:

There is no significant difference in the level of satisfaction which industrial arts teachers perceive when the percentages of the teaching construction cluster are compared.

A significant difference was found in the professional/technical expertise area. That is, different teaching loads in the construction cluster contributed to the satisfaction level in the professional/technical expertise area. More specifically, a significant difference

TABLE 29. Mean Satisfaction Ratings by Factor Area and F Probabilities for the Construction Cluster

Factor Area	Construction Cluster 0%	1-50%	51-100%	P
Students	0.894	1.369	1.182	0.2241
Colleagues	1.732	1.895	1.636	0.6136
Principal/supervisor	0.657	0.882	1.546	0.1755
Administration	0.224	0.211	0.636	0.6403
Salary & benefits	-0.818	-0.618	-0.545	0.7513
Working conditions	0.833	1.027	1.143	0.6913
Teacher status	0.224	0.667	0.546	0.3391
Expertise	1.463 (n=67)	1.934 (n=76)	1.636 (n=22)	0.0481*
Community	1.075	1.342	1.182	0.5928

*Significant at 0.05 level.

between group 2 (1-50%) and group 1 (0%) was found from a pairwise T-test. Teachers with less than 50% of the teaching load in the construction cluster were more satisfied with their technical expertise than those not teaching any course related to construction.

Hypothesis 2.8.2:

There is no significant difference in the level of satisfaction which industrial arts teachers perceive when the percentages of teaching the manufacturing cluster are compared.

There was a significant difference found regarding the area of administration. A pairwise T-test was then applied

TABLE 30. Mean Satisfaction Ratings by Factor Area and F Probabilities for the Manufacturing Cluster

Factor Area	Manufacturing Cluster			P
	0%	1-50%	51-100%	
Students	0.947	1.362	0.800	0.1873
Colleagues	1.828	1.771	1.840	0.9538
Principal/supervisor	0.810	0.880	1.040	0.8858
Administration	-0.259 (n=58)	0.506 (n=83)	0.800 (n=25)	0.0231*
Salary & benefits	-0.877	-0.626	-0.520	0.6360
Working conditions	1.000	1.049	0.520	0.3743
Teacher status	0.246	0.614	0.440	0.4948
Expertise	1.897	1.639	1.620	0.2871
Community	1.155	1.157	1.440	0.7076

*Significant at 0.05 level.

for further examination and it was found that there was a significant difference between group 1 (0%) and group 3 (51-100%). This result showed that teachers with more than 50% of their teaching load in the manufacturing area were more satisfied with the school administration than teachers not teaching manufacturing.

Hypothesis 2.8.3:

There is no significant difference in the level of satisfaction which industrial arts teachers perceive when the percentages of teaching the energy and power cluster are compared.

TABLE 31. Mean Satisfaction Ratings by Factor Area and F Probabilities for the Energy & Power Cluster

Factor Area	Energy & Power Cluster			P
	0%	1-50%	51-100%	
Students	1.154	1.012	1.667	0.3082
Colleagues	2.000	1.615	2.000	0.1442
Principal/supervisor	0.985	0.819	0.842	0.8718
Administration	0.385	0.325	-0.158	0.5499
Salary & benefits	-0.484	-0.940	-0.421	0.2511
Working conditions	1.016	0.829	1.278	0.5476
Teacher status	0.831 (n=65)	0.110 (n=82)	0.632 (n=19)	0.0482*
Expertise	2.015 (n=65)	1.434 (n=83)	1.895 (n=19)	0.0067**
Community	1.538 (n=65)	0.880 (n=83)	1.474 (n=19)	0.0274*

*Significant at 0.05 level.
**Significant at 0.01 level.

There was a significant difference found in the factors of teacher status, expertise and community. In addition, pairwise T-tests were employed and significant differences were found between group 2 (1-50%) and group 1 (0%), and group 2 and group 3 (51-100%) within the above significantly different areas. Group 2 perceived least satisfaction. The teaching load in the energy and power cluster contributed to the satisfaction level of industrial arts teachers regarding their technical expertise, teacher status, and community.

Hypothesis 2.8.4:

There is no significant difference in the level of satisfaction which industrial arts teachers perceive when the percentages of teaching the graphic communication cluster are compared.

There was no significant difference found. Teaching graphic communication did not contribute significant differences of perception in relation to job satisfaction.

The results of Hypothesis 2 testing are summarized in Table 32, and verbalized below:

1. The teaching load in the manufacturing cluster contributed to the industrial arts teachers' satisfaction toward school administration.
2. The contributors to the level of satisfaction on salary and benefits were school level, teachers' age, years of experience in teaching industrial arts, and teachers' educational background.
3. The age of the teacher was a contributor to satisfaction in working conditions.
4. Contributors to the levels of satisfaction of teacher status included school location, age of teachers, and years in teaching industrial arts.
5. The teachers' age, industrial arts teaching experience, teaching load in the construction cluster, and in the energy and power cluster were

TABLE 32. Statistical Summary of Hypothesis 2 Testing

Variable	Satisfaction Factor									Overall
	1	2	3	4	5	6	7	8	9	
School Level					**	*	*		**	*
School Location										
School Size									**	
Age					*		*	**	**	
Marital Status										
Teaching I. A.					*			**	**	
Educational Level					**				**	*
Course Cluster										
Construction								*		
Manufacturing				*						
Energy/Power							*	**	*	
Graphic Communication										

1= Students
2= Colleagues
3= Principal/supervisor
4= Administration
5= Salary & Benefits
6= Working conditions
7= Teacher status
8= Expertise
9= Community

*Significant at 0.05 level.
**Significant at 0.01 level.

contributors to the level of satisfaction toward their technical expertise.

6. The contributors to the levels of satisfaction toward the community included the school level, school size, teachers' age, years of teaching industrial arts, educational level, and teaching load in the cluster of energy and power.

7. The school level and teachers' educational level were contributors to overall teacher satisfaction.

Research Hypothesis 3

There is no relationship between the level of stress and job satisfaction.

The Pearson product-moment correlation coefficient of mean of stress factors and mean of satisfaction variables was examined. The results showed that there was a significant ($P<=0.012$) positive relationship existing between satisfaction and stress factors. The correlation coefficient was 0.787.

Research Hypothesis 4

There is no significant difference in the level of satisfaction when the willingness for career change is compared.

The willingness for career change was indicated in the career replanning question. The question is--

If I could plan my career again, I would choose:

(1) teaching Industrial Arts again.

(2) teaching other than Industrial Arts.

(3) an occupation other than teaching.

Table 16 presented the results of responses. There were only eight teachers who chose teaching other than Industrial Arts category. The raw data showed that two of the eight had less than 50% of teaching load related to Industrial Arts, and another indicated that his major was not Industrial Arts. Based on this information, the researcher decided to eliminate the category of teaching areas other than Industrial Arts. Analysis was conducted by comparing the teaching Industrial Arts group with the group who would choose another occupation. The difference in satisfaction level in the nine areas were compared with teachers who would teach Industrial Arts continuously and those who would choose a career other than teaching. An ANOVA test was employed. Table 33 presented means and the F values for comparison in the nine areas.

There were significant differences at the 0.01 level in principal/supervisor, salary and benefits, and teacher status, and the 0.05 level in administration, working conditions, and community areas. The findings demonstrated that the teachers who would stay in teaching industrial arts were more satisfied with their principals and supervisors, working conditions, and their communities than those teachers who would choose to leave the teaching profession. The teachers who selected other careers maintained a neutral

TABLE 33. Means of Areas of Satisfaction and F Statistics for Willingness for Career Change

Area of satisfaction	Teach I.A.	Other than teach	P
Students	1.382	0.926	0.0804
Colleagues	1.869	1.707	0.4376
Principal/supervisor	1.394	0.463	0.0020**
Administration	0.710	-0.021	0.0167*
Salary & benefits	-0.066	-1.749	0.0001**
Working conditions	1.253	0.737	0.0455*
Teacher status	0.960	0.012	0.0011**
Expertise	1.908	1.573	0.0642
Community	1.526	0.976	0.0232*

*Significant at 0.05 level.
**Significant at 0.01 level.

feeling toward teacher status and school administration, while the teachers who would remain teaching industrial arts felt slightly more satisfied than those electing other careers. Teachers who would continue to teach industrial arts felt neutral on their salary and benefits, while those teachers who would rather leave felt slightly dissatisfied with the salary and benefits.

CHAPTER V SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The first four chapters of this study dealt with the introduction and background of the study, a review of the literature, methodology and procedures, and analysis of data and findings of the study. The purpose of this chapter is to summarize the preceding chapters, draw conclusions based on the findings, and present recommendations.

Summary

The study was concerned with identifying patterns of job stress and satisfaction of industrial arts teachers in Iowa high schools. The following questions were considered:

1. What degree of satisfaction do industrial arts teachers feel about their career in education?
2. What extent of stress do industrial arts teachers feel they are experiencing?
3. What do industrial arts teachers feel are the main sources of stress?
4. What do industrial arts teachers feel are the main satisfiers and dissatisfiers in their job?
5. Are there differences in the answers to the above questions for different demographical subgroups (i.e., school level, school location, school size, teaching experience, educational

background, course cluster, marital status, and age)?

A comprehensive review of literature and summary was made. A questionnaire booklet was developed based on the findings and recommendations of the review summary, faculty suggestions, format survey, and a pilot test. Subjects were selected by using a stratified sampling technique from Iowa high school industrial arts teachers. The questionnaire was mailed to 350 selected samples. One hundred and eighty-three questionnaires (52.29%) were returned.

The data were analyzed and hypotheses were tested by applying SAS and SPSSX computer statistical packages.

Conclusions

In this section, the general findings and the research hypotheses tested in Chapter IV are concluded.

General Findings

The general findings of this study, as reported in Table 14 and Table 15, suggested that the overall means of Iowa high school industrial arts teachers' job stress and satisfaction were marginally in the positive range.

The major sources of job satisfaction were faculty relationships, the teachers' own professional and technical expertise, and community environment. The major sources of

eustress were the teachers' own professional and technical expertise, faculty relationships, and the principal's attitude toward industrial arts. More specific aspects were use of creative ability, competency of teaching, interesting and challenging teaching assignments, responsibility for the future of students, respect and confidence from students, social and professional relationships with fellow teachers, principal's actions toward industrial arts, students' cooperative behavior, condition of equipment for teaching, availability of materials and service.

The major sources of job dissatisfaction were salary and benefits, school administration, and teacher status. The sources of distress were teacher status, salary and benefits, school administration, student misbehavior, and working conditions. Specific aspects included salary, standard of living, recognition of good teaching, non-teaching responsibilities, class schedules, noise level in the shop, shop safety, and student interruption and verbal abuse.

Conclusions of Hypotheses Test

Hypothesis 1:

Based on the findings reported in Table 23, the null hypothesis was rejected. Significant differences were found

regarding demographic variables of age and year of teaching industrial arts in relation to stress.

Hypothesis 2:

Based on the findings reported in Table 32, the null hypothesis was rejected. Significant differences were found regarding demographic variables of school level and educational level in relation to satisfaction.

Hypothesis 3:

Based on the findings determined by a Pearson product-moment correlation reported on page 108, the null hypothesis was rejected. There was a positive relationship, 0.787, between stress and satisfaction. A factor which is perceived as an eustressor tends to be a source of satisfaction, and a distressor tends to be a source of dissatisfaction.

Hypothesis 4:

Based on the findings reported in Table 33, the null hypothesis was rejected. Significant differences were found regarding principal/supervisor, administration, salary and benefits, working conditions, teacher status, and community areas in relation to career change.

Significant contributors to the nine areas of sources of stress and satisfaction are also explained below by factor area:

Colleagues

Stress contributor: years of teaching industrial arts, teaching load in the cluster of energy and power.

Administration

Stress contributor: years of teaching industrial arts.

Satisfaction contributor: teaching load in the cluster of manufacturing.

Salary and Benefits

Stress contributor: teacher age, years of teaching industrial arts, educational level.

Satisfaction contributor: teacher age, years of teaching industrial arts, educational level, school level.

Working Conditions

Stress contributor: teacher age.

Satisfaction contributor: school level.

Teacher Status

Stress contributor: teacher age, school location, years of teaching industrial arts.

Satisfaction contributor: teacher age, school level, teaching load in the cluster of energy and power.

Expertise

Stress contributor: teaching load in the cluster of construction.

Satisfaction contributor: teaching load in the cluster of construction, energy and power, years of teaching industrial arts, teacher age.

Community

Stress contributor: teacher age, years of teaching industrial arts, educational level.

Satisfaction contributor: teacher age, years of teaching industrial arts, educational level, school level, teaching load in the cluster of energy and power.

Although a high correlation of 0.787 was found between stress and satisfaction correspondingly, an eustressor/distressor may or may not be the major source of satisfaction/dissatisfaction. A suggestion was made to conduct a test including stress and satisfaction items correspondingly, which would provide more complete information about a person's reactions toward his/her particular environment or situation.

Data reported in Table 15 showed that salary and benefits was the only area that teachers felt dissatisfied. When the willingness for changing careers was examined, nearly half of the teachers (49.4%) would elect to leave the

teaching profession. It is justifiable to conclude that salary and benefits is a main contributor to the industrial arts teachers' decision to leave the teaching profession. The comments from the teachers in the questionnaires supported this inference. On the other hand, the contributors to the decision for remaining in teaching industrial arts included faculty relationships, and the teachers' own professional and technical expertise.

Recommendations

It is recommended that the findings of this study be:

1. Utilized by educators to evaluate the industrial arts teachers' level of job satisfaction and sources of stress.
2. Used in teacher preparation institutions for improving environments and stress reduction strategies, and for evaluating and improving programs.
3. Used in similar study, including parallel items for stress and satisfaction, to further examine the relationship between stress and satisfaction.

Based on the results of the study, the following recommendations for further studies are also made:

1. The present study might be replicated by using a population in different states or geographic areas.
2. A similar study between current teachers and former teachers who changed their career might be conducted to provide more evidence of industrial arts teacher stress.
3. A study of industrial arts teacher job mobility might help explain teacher stress and job satisfaction.
4. A long-term longitudinal study might be conducted to determine the change of patterns of industrial arts teachers' job satisfaction and stress.
5. A similar study, including parallel tests for stress and satisfaction, is needed to examine the close relationship between stress and satisfaction.

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APPENDIX A: SURVEY QUESTIONNAIRE


INDUSTRIAL ARTS
EDUCATORS
we are concerned about you...

Dear Industrial Arts Educator:

A study is being conducted at Iowa State University to investigate the patterns of job satisfaction and stress on industrial arts teachers in the state of Iowa. Very little is known about this topic. Your assistance is requested for this study and your participation is vital to its success. This survey booklet takes only about twenty minutes to complete. We believe you will find it interesting and well worth the time. Please return it within one week if possible.

Although many studies have been conducted concerning teacher stress and teacher satisfaction, very few have been specifically designed to identify the factors and aspects contributing to the stress and satisfaction of industrial arts teachers. A belief that the findings of this study could aid various educators to recognize the industrial arts teachers' job satisfaction level and the sources of stress; and could be used in improving teaching environments and stress reduction/prevention strategies.

The value of this study depends on your being straight forward in answering the statements. There are no right or wrong responses, so please respond to the statements frankly. The responses you make are GUARANTEED CONFIDENTIAL. They will not be used to identify or evaluate any individual, school, or community. You are asked to circle each statement about your own situation and then circle your "gut-level" feeling about your situation, not about the item statement. Since the scoring methods require that only complete forms are used for analysis, please be sure to answer ALL statements.

The survey booklet is coded for the information about your city population, school enrollment, and followup on nonrespondents.

For your convenience postage for returning this booklet is prepaid.

We appreciate your prompt cooperation and professional contribution.

Sincerely yours,

William Wolansky

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Coordinator
International Educational Program
Professor
Industrial Education & Technology
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P.S.: If you choose not to participate, please return this survey with a brief note. Thanks.

DIRECTION

Please read each statement carefully, and circle your AGREEMENT to each statement according to your own situation, then circle your FEELING about your situation :

AGREEMENT	FEELING
(SA) strongly agree	(3) highly enjoyable / energized
(A) agree	(2) enjoyable /encouraged
(N) neutral	(1) slightly enjoyable
(D) disagree	(0) no special feeling
(SD) strongly disagree	(-1) slightly uncomfortable
	(-2) moderately uncomfortable / frustrate
	(-3) extremely uncomfortable / can not tolerate

If you do not find the exact answer which fits your case, choose the one which comes the closest to it.

	AGREEMENT to your situation					FEELING about your situation						
1. The relations between I.A. teachers and the teachers in other fields are good. . . .	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
2. Students often interrupt my demonstration / lecture	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
3. Books and supplies are not sufficient in my teaching area.	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
4. Teachers feel free to criticize administrative policy at faculty meetings called by principal	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
5. The shop budget is adequate.	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
6. My teaching position gives me the social status in the community that I desire. . . .	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
7. Students verbally abuse me or my colleagues.	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
8. The equipment I need for teaching is available	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
9. The equipment we have for teaching is in good condition	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
10. I am responsible for the future of others.	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
11. Our principal challenges and stimulates our professional growth.	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
12. The class sizes I teach are too large. . . .	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
13. My salary isn't equal to my duties and responsibilities	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
15. Students physically abuse me or my colleagues.	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
16. "High Tech" does not affect my teaching contents.	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
17. I take extension courses mainly to move up on the salary schedule	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
18. Noise level in my shop is too high	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
19. This community expects its teachers to meet unreasonable personal standards	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
20. Students show cooperation in class activities	SA	A	N	D	SD	3	2	1	0	-1	-2	-3

AGREEMENT

(SA) strongly agree
(A) agree
(N) neutral
(D) disagree
(SD) strongly disagree

FEELING

(3) highly enjoyable / energized
(2) enjoyable / encouraged
(1) slightly enjoyable
(0) no special feeling
(-1) slightly uncomfortable
(-2) moderately uncomfortable / frustrate
(-3) extremely uncomfortable / can not tolerate

	AGREEMENT to your situation	FEELING about your situation
21. The facilities required for my teaching are execellent	SA A N D SD	3 2 1 0 -1 -2 -3
22. I do my own maintenance of the shop equipment	SA A N D SD	3 2 1 0 -1 -2 -3
23. Teaching I.A. enables me to use my creative abilities.	SA A N D SD	3 2 1 0 -1 -2 -3
24. Students ignore safety rules while operating machines/tools	SA A N D SD	3 2 1 0 -1 -2 -3
25. Other teachers in our school are appreciative of my work.	SA A N D SD	3 2 1 0 -1 -2 -3
26. Keeping up professionally is too much of a burden	SA A N D SD	3 2 1 0 -1 -2 -3
27. My principal views I.A. as an important subject area.	SA A N D SD	3 2 1 0 -1 -2 -3
28. There is a lack of recognition for good teaching in my school	SA A N D SD	3 2 1 0 -1 -2 -3
29. Experienced faculty members accept new and/or younger members as colleagues	SA A N D SD	3 2 1 0 -1 -2 -3
30. I have to tell students the same things over and over.	SA A N D SD	3 2 1 0 -1 -2 -3
31. Materials/supplies which I need for teaching are available	SA A N D SD	3 2 1 0 -1 -2 -3
32. I am at a disadvantage professionally because other teachers are better prepared.	SA A N D SD	3 2 1 0 -1 -2 -3
33. I have the opportunity for providing input into decision-making (policy, salary, etc.).	SA A N D SD	3 2 1 0 -1 -2 -3
34. Our community expects the teachers to participate in too many social activities.	SA A N D SD	3 2 1 0 -1 -2 -3
35. Students don't prepare materials required for my class	SA A N D SD	3 2 1 0 -1 -2 -3
36. Our teaching staff is congenial to work with	SA A N D SD	3 2 1 0 -1 -2 -3
37. My students regard me with respect and seem to have confidence in my professional ability.	SA A N D SD	3 2 1 0 -1 -2 -3
38. My principal acts as though s/he is interested in me and my problems	SA A N D SD	3 2 1 0 -1 -2 -3
39. I have to cover other teachers classes when they are absent	SA A N D SD	3 2 1 0 -1 -2 -3
40. My community respects I.A. teachers and treats them like professional persons.	SA A N D SD	3 2 1 0 -1 -2 -3
41. Students show interest in my class	SA A N D SD	3 2 1 0 -1 -2 -3

	AGREEMENT to your situation					FEELING about your situation						
42. The procedures for obtaining materials & services are well defined and efficient. . .	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
43. My principal takes actions to solve shop problems when made aware of them. . . .	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
44. I need to do school work at home	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
45. Within the limits of financial resources, the school tries to follow a generous policy regarding fringe benefits, professional travel, professional study, etc.	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
46. I lack time to spend with individual students.	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
47. The teachers with whom I work have high professional ethics.	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
48. As an I.A. teacher, I think I am as competent as most other teachers.	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
49. My principal often visits the classroom without being invited.	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
50. I am isolated and confined to the shop . . .	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
51. Community pressures prevent me from doing my best as an I.A. teacher	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
52. Relationships among students are good. . . .	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
53. Our school provides adequate clerical services for the teachers.	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
54. Teaching I.A. is interesting and challenging work	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
55. The school schedule places my classes at a disadvantage.	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
56. Salary policies are administered with fairness and justice	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
57. I have to talk to parents about their child's problems	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
58. I lack time for further study.	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
59. When the principal visits my class it is for the purpose of evaluating the instructor	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
60. I have too many non-teaching responsibilities	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
61. My teaching job enables me to provide a satisfactory standard of living for my family.	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
62. I have to participate in teacher-parent conferences	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
63. I have chances to participate in professional conferences, seminars, workshops, and other related activities. . .	SA	A	N	D	SD	3	2	1	0	-1	-2	-3
64. My supervisor's technical competence and aptitude are good.	SA	A	N	D	SD	3	2	1	0	-1	-2	-3

OVER ALL . . .

Please use the SATISFACTION scale at right to indicate how satisfied you are with the following categories:

SATISFACTION
(3) very satisfied
(2) somewhat satisfied
(1) slightly satisfied
(0) neutral
(-1) slightly dissatisfied
(-2) somewhat dissatisfied
(-3) very dissatisfied

Students	3	2	1	0	-1	-2	-3
Colleagues	3	2	1	0	-1	-2	-3
Principal/Supervisor	3	2	1	0	-1	-2	-3
Administration	3	2	1	0	-1	-2	-3
Wage & Benefits	3	2	1	0	-1	-2	-3
Working conditions	3	2	1	0	-1	-2	-3
Teacher status	3	2	1	0	-1	-2	-3
Professional/technical expertise	3	2	1	0	-1	-2	-3
Community	3	2	1	0	-1	-2	-3

Please provide some information about your background:

Age : _____

Years of teaching experience :
Total teaching _____
Teaching I.A. _____

Marital Status :
Single _____
Married _____
Divorced _____
Widowed _____

Highest Degree Earned :
B.S./ B.A. _____
M.S./M.Ed. _____
Ed.S. _____
Ed.D./Ph.D. _____

Cluster of Teaching	% of your teaching load	grade level 4	5	6	7	8	9	10	11	12
Construction	_____ %	—	—	—	—	—	—	—	—	—
Manufacturing	_____ %	—	—	—	—	—	—	—	—	—
Energy & Power	_____ %	—	—	—	—	—	—	—	—	—
Graphic Communication	_____ %	—	—	—	—	—	—	—	—	—
Other :_____ (please specify)	_____ %	—	—	—	—	—	—	—	—	—

ALL IN ALL . . .

If I could plan my career again, I would choose: (circle one)

(1) teaching I.A. again 1

(2) teaching other than I.A. 2

(3) an occupation other than teaching 3

We appreciate the time you have taken to complete this questionnaire.

Postage for returning this questionnaire is prepaid,
so all you need to do is drop it in a mailbox.

Thank you again for your professional contribution.

P-973

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APPENDIX B: ORIGINAL ITEM CLASSIFICATION

Working Conditions

3. Books and supplies are not sufficient in my teaching area.

5. The shop budget is adequate.

8. The equipment I need for teaching is available.

9. The equipment we have for teaching is in good condition.

12. The class sizes I teach are too large.

18. Noise level in my shop is too high.

21. The facilities required for my teaching is excellent.

28. There is a lack of recognition for good teaching in my school.

31. Materials/supplies which I need for teaching are available.

42. The procedures for obtaining materials and services are well defined and efficient.

44. I need to do school work at home.

Principal/Supervisor

4. Teachers feel free to criticize administrative policy at faculty meetings called by principal.

11. Our principal challenges and stimulates our professional growth.

27. My principal views I.A. as an important subject area.

38. My principal acts as though he/she is interested in me and my problems.

43. My principal takes actions to solve shop problems when made aware of them.

49. My principal often visits the classroom without being invited.

59. When the principal visits my class it is for the purpose of evaluating the instructor.

64. My supervisor's technical competence and aptitude are good.

Expertise

10. I am responsible for the future of others.

16. "High Tech" does not affect my teaching contents.

23. Teaching I.A. enables me to use my creative abilities.

26. Keeping up professionally is too much of a burden.

32. I am at a disadvantage professionally because other teachers are better prepared.

37. My students regard me with respect and seem to have confidence in my professional ability.

48. As an I.A. teacher, I think I am as competent as most other teachers.

54. Teaching I.A. is interesting and challenging work.

57. I have to talk to parents about their child's problems.

58. I lack time for further study.

Salary and Benefits

13. My salary isn't equal to my duties and responsibilities.

14. My job is secure.

17. I take extension courses mainly to move up on the salary schedule.

45. Within the limits of financial resources, the school tries to follow a generous policy regarding fringe benefits, professional travel, professional study, etc.

56. Salary policies are administered with fairness and justice.

61. My teaching job enables me to provide a satisfactory

standard of living for my family.

63. I have chances to participate in professional conferences, seminars, workshops, and other related activities.

Community

19. This community expects its teachers to meet unreasonable personal standards.

34. Our community expects the teachers to participate in too many social activities.

51. Community pressures prevent me from doing my best as an I.A. teacher.

Administration

22. I do my own maintenance of the shop equipment.

33. I have the opportunity for providing input into decision-making (policy, salary, etc.).

39. I have to cover other teachers classes when they are absent.

46. I lack time to spend with individual students.

50. I am isolated and confined to the shop.

53. Our school provides adequate clerical services for the teachers.

55. The school schedule places my classes at a disadvantage.

60. I have too many non-teaching responsibilities.

62. I have to participate in teacher-parent conferences.

Teacher Status

6. My teaching position gives me the social status in

the community that I desire.

14. My job is secure.

40. My community respects I.A. teachers and treats them like professional persons.

Students

2. Students often interrupt my demonstration/lecture.

7. Students verbally abuse me or my colleagues.

12. The class sizes I teach are too large.

15. Students physically abuse me or my colleagues.

20. Students show cooperation in class activities.

24. Students ignore safety rules while operating machines/tools.

30. I have to tell students the same things over and over.

35. Students don't prepare materials required for my class.

41. Students show interest in my class.

52. Relationships among students are good.

Colleagues

1. The relations between I.A. teachers and the teachers in other fields are good.

25. Other teachers in our school are appreciative of my work.

29. Experienced faculty members accept new and/or younger members as colleagues.

36. Our teaching staff is congenial to work with.

47. The teachers with whom I work have high professional ethics.

APPENDIX C: ADJUSTED ITEM CLASSIFICATION

Working Conditions

3. Books and supplies are not sufficient in my teaching area.

5. The shop budget is adequate.

8. The equipment I need for teaching is available.

9. The equipment we have for teaching is in good condition.

18. Noise level in my shop is too high.

21. The facilities required for my teaching is excellent.

31. Materials/supplies which I need for teaching are available.

39. I have to cover other teachers classes when they are absent.

42. The procedures for obtaining materials & services are well defined and efficient.

Principal/Supervisor

4. Teachers feel free to criticize administrative policy at faculty meetings called by principal.

11. Our principal challenges and stimulates our professional growth.

27. My principal views I.A. as an important subject area.

33. I have the opportunity for providing input into decision-making (policy, salary, etc.).

38. My principal acts as though he/she is interested in me and my problems.

43. My principal takes actions to solve shop problems when made aware of them.

49. My principal often visits the classroom without

being invited.

59. When the principal visits my class it is for the purpose of evaluating the instructor.

64. My supervisor's technical competence and aptitude are good.

Expertise

10. I am responsible for the future of others.

20. Students show cooperation in class activities.

23. Teaching I.A. enables me to use my creative abilities.

30. I have to tell students the same things over and over.

37. My students regard me with respect and seem to have confidence in my professional ability.

41. Students show interest in my class.

48. As an I.A. teacher, I think I am as competent as most other teachers.

54. Teaching I.A. is interesting and challenging work.

57. I have to talk to parents about their child's problems.

Salary and Benefits

13. My salary isn't equal to my duties and responsibilities.

17. I take extension courses mainly to move up on the salary schedule.

26. Keeping up professionally is too much of a burden.

45. Within the limits of financial resources, the school tries to follow a generous policy regarding fringe benefits, professional travel, professional study, etc.

56. Salary policies are administered with fairness and justice.

58. I lack time for further study.

61. My teaching job enables me to provide a satisfactory standard of living for my family.

63. I have chances to participate in professional conferences, seminars, workshops, and other related activities.

Community

19. This community expects its teachers to meet unreasonable personal standards.

34. Our community expects the teachers to participate in too many social activities.

40. My community respects I.A. teachers and treats them like professional persons.

51. Community pressures prevent me from doing my best as an I.A. teacher.

62. I have to participate in teacher-parent conferences.

Administration

22. I do my own maintenance of the shop equipment.

28. There is a lack of recognition for good teaching in my school.

50. I am isolated and confined to the shop.

53. Our school provides adequate clerical services for the teachers.

55. The school schedule places my classes at a disadvantage.

60. I have too many non-teaching responsibilities.

Teacher Status

6. My teaching position gives me the social status in the community that I desire.

14. My job is secure.

35. Students don't prepare materials required for my class.

44. I need to do school work at home.

46. I lack time to spend with individual students.

Students

2. Students often interrupt my demonstration/lecture.

7. Students verbally abuse me or my colleagues.

12. The class sizes I teach are too large.

15. Students physically abuse me or my colleagues.

24. Students ignore safety rules while operating machines/tools.

Colleagues

1. The relations between I.A. teachers and the teachers in other fields are good.

25. Other teachers in our school are appreciative of my work.

29. Experienced faculty members accept new and/or younger members as colleagues.

36. Our teaching staff is congenial to work with.

47. The teachers with whom I work have high professional ethics.

APPENDIX D: PILOT STUDY COVER LETTER

IOWA STATE
UNIVERSITY

Industrial Education and Technology
Graduate Student Organization
Ames, Iowa 50011
Telephone: (515) 294-6775

Dear Mr.

Your assistance and comments are requested for a survey instrument. I am a Ph.D. candidate at Iowa State University with a major in Industrial Education and Technology. I am conducting a study on the Patterns of Job Satisfaction and Stress on High School Industrial Arts Teachers in the State of Iowa.

A questionnaire is designed for my investigation. Please have a cup of coffee and complete the questionnaire, then give your comments. Also include the following:

* Is the questionnaire too long?
* Is any item inappropriate (incomplete, ambiguous, difficult to read, etc.)?
* Are there aspects which you would contribute stress and/or job satisfaction to industrial arts teachers that were not included in this questionnaire?

Your comments are very important for the success of this study. I eagerly anticipate your help.

For your convenience, a postage-paid return envelope is provided. Please use it to return your questionnaire and comments as soon as possible.

I appreciate your help and contribution.

Sincerely Yours,

Chin-Zue Chen

Chin-Zue Chen
Graduate Student
Department of Industrial Education & Technology

APPENDIX E: FOLLOW-UP COVER LETTER

IOWA STATE
UNIVERSITY

Industrial Education and Technology
Graduate Student Organization
Ames, Iowa 50011
Telephone: (515) 294-6775

Dear Industrial Arts Teacher:

I realize that industrial arts teachers have very busy schedules, especially at this point of the semester. Perhaps that is why I have not received your completed questionnaire booklet for the study of the patterns of job satisfaction and stress on the industrial arts teachers in this state, which was mailed to you late last month. I am enclosing another copy of the booklet for your response in case your survey booklet was not received.

This study cannot be successfully concluded without your support and cooperation. If you have recently returned your survey booklet, please accept this note as a thank you for your contribution. If you have not done so, would you take a little of your time to complete and return it as early as possible.

Thank you in advance for your generosity and cooperation.

Best wishes for a pleasant summer break.

Sincerely,

Chin-Zue Chen

Chin-Zue Chen
Graduate Student
Department of Industrial Education & Technology
Iowa State University

APPENDIX F: POPULATION, SAMPLE, AND RESPONDENT DISTRIBUTION BY SCHOOL LEVEL, SCHOOL LOCATION, AND SCHOOL SIZE

		Rural	Suburban	Urban	Rural	Suburban	Urban	Rural	Suburban	Urban	
Small	Population	48	36	2	153	1	0	188	3	4	
	Sample	18	13	1	58	0		71	1	2	
	Return (percent)	3 (16.7%)	5 (38.5%)	0 (0%)	35 (60.3%)			42 (59.2%)	0 (0%)	2 (100%)	
Middle	Population	21	31	49	49	1	3	116	32	15	
	Sample	8	12	18	18	0	1	43	12	6	
	Return (percent)	8 (100%)	10 (83.3%)	10 (55.6%)	8 (44.6%)		0 (0%)	25 (58.1%)	6 (50%)	3 (50%)	
Large	Population	0	0	3	0	2	0	8	115	54	
	Sample			1		1		3	43	20	
	Return (percent)			0 (0%)		1 (100%)		1 (33.3%)	14 (32.6%)	10 (50%)	
Subtotal	Population	69	67	54	202	4	3	312	150	73	
	Sample	26	25	20	76	1	1	117	56	28	
	Return (percent)	11 (42.3%)	15 (60%)	10 (50%)	43 (56.6%)	1 (33.3%)	0 (0%)	68 (58.1%)	20 (35.7%)	15 (53.6%)	
Total	Population	190			209			535			933
	Sample	71(37.37%)			78(37.5%)			201(37.57%)			350 (37.51%)
	Return (%)	36(50.70%)			44(56.41%)			103(51.24%)			183 (52.29%)
School Level		Junior High			Junior/Senior High			Senior High			Grand Total

APPENDIX G: FACTOR LOADING I

	Loading	
Working conditions	Unrotated	Rotated
Item 3	0.484	0.609
Item 5	0.449	0.679
Item 8	0.530	0.762
Item 9	0.516	0.615
Item 18	0.210	0.273
Item 21	0.426	0.569
Item 31	0.448	0.730
Item 39	0.275	-0.240
Item 42	0.506	0.477
Principal/Supervisor	**Unrotated**	**Rotated**
Item 4	0.007	0.371
Item 11	-0.113	0.677
Item 27	-0.294	0.610
Item 33	0.053	0.334
Item 38	-0.312	0.791
Item 43	-0.296	0.711
Item 49	-0.328	0.468
Item 59	-0.122	0.491
Item 64	-0.163	0.559
Expertise	**Unrotated**	**Rotated**
Item 10	0.411	0.459
Item 20	0.370	0.457
Item 23	0.165	0.592
Item 30	0.495	0.231
Item 37	0.284	0.673
Item 41	0.245	0.609
Item 48	0.220	0.583
Item 54	0.178	0.600
Item 57	0.283	0.401
Salary & Benefits	**Unrotated**	**Rotated**
Item 13	-0.224	0.577
Item 17	0.074	0.524

Item 26	0.094	0.472
Item 45	-0.276	0.510
Item 56	-0.139	0.599
Item 58	0.100	0.548
Item 61	-0.433	0.515
Item 63	-0.294	0.306

Community	Unrotated	Rotated
Item 19	-0.087	0.430
Item 34	-0.031	0.726
Item 40	-0.149	0.393
Item 51	0.053	0.717
Item 62	0.010	0.346

Administration	Unrotated	Rotated
Item 22	-0.009	0.435
Item 28	-0.064	0.467
Item 50	0.178	0.679
Item 53	0.152	0.391
Item 55	0.306	0.360
Item 60	0.059	0.591

Teacher Status	Unrotated	Rotated
Item 6	0.018	0.424
Item 14	0.206	0.360
Item 35	-0.112	0.627
Item 44	0.044	0.536
Item 46	-0.338	0.502

Students	Unrotated	Rotated
Item 2	0.148	0.645
Item 7	0.077	0.676
Item 12	-0.130	0.379
Item 15	-0.011	0.724
Item 24	0.001	0.561

Colleagues	Unrotated	Rotated
Item 1	0.319	0.667
Item 25	0.286	0.347
Item 29	0.088	0.536
Item 36	0.317	0.663
Item 47	0.072	0.450

APPENDIX H: FACTOR LOADING II

Factor loading	Discarded items		
Unrotated	Item 16	Item 32	Item 52
Factor 1	0.492	0.380	0.355
Factor 2	0.112	0.493	-0.389
Factor 3	0.069	-0.001	0.295
Factor 4	-0.137	0.123	0.113
Factor 5	0.156	0.014	-0.006
Factor 6	0.160	0.138	0.299
Factor 7	0.188	-0.120	-0.042
Factor 8	-0.066	-0.065	-0.224
Factor 9	-0.193	-0.219	-0.034
Rotated	Item 16	Item 32	Item 52
Factor 1	0.307	-0.019	0.230
Factor 2	-0.026	-0.002	-0.037
Factor 3	0.194	0.032	0.525
Factor 4	0.278	0.248	-0.082
Factor 5	0.376	0.444	-0.120
Factor 6	0.040	0.422	0.185
Factor 7	-0.039	-0.051	0.023
Factor 8	0.137	0.205	0.052
Factor 9	0.156	-0.079	0.322